APPENDIX F

WRITTEN SCOPING COMMENTS

FEDERAL AGENCY

SCOPING COMMENTS

Congress of the United States

Washington, DC 20515

December 16, 2005

Ms. Fran Florez, Chairperson
California High Speed Rail Authority
State of California
925 L Street, Suite 1425,
Sacramento, CA 95814

Dear Chairperson Florez:

As strong supporters of the high-speed train system being planned by the California High-Speed Rail Authority (CHSRA) we are writing to you to express our support for ensuring that the City of San Jose be included for full service under any preferred alignment that the Authority may pursue in order to bring the tremendous benefits of high speed rail to the San Francisco Bay Area and California. We look forward to working with you to make certain that the new high-speed train network is the most economically and environmentally sound alternative to meet the intercity travel demand of the expected 45 million California residents by 2020.

As policy makers we recognize that "business as usual" thinking of simply building more highways and airports is not responsible planning and must be abandoned. We share with you the belief that a project of this magnitude must be based on state-of-the-art planning and engineering principals that are applicable for a 21st century high-speed passenger train system.

We remain convinced that any Altamont alignment continues to be an unacceptable option as this route would not allow the construction of a high speed rail system that would be capable of meeting the goal of providing full service options to the cities of San Francisco, San Jose and Oakland. An Altamont option, we believe does not make sense from an operations perspective, is incapable of providing service meeting the basic project purpose, and is incapable of generating satisfactory revenue to justify the construction of a system serving San Francisco, Oakland, San Jose and San Francisco Airport. As such it is impracticable and should not be pursued.

An Altamont alignment option requires the Authority to acknowledge that this option would require the construction of a new Bay crossing, an endeavor that would certainly add dramatically to the project's overall cost and would mostly likely cause considerable environmental impact in the surrounding area. Without a new Bay crossing, an Altamont alignment would effectively be able to serve only two termini, Oakland and San Jose, which would essentially eliminate high-speed service to San Francisco, San Francisco International Airport and other points along the San Francisco peninsula. Routing a high speed train to San Jose from an Altamont alignment and then re-routing it to San Francisco would be impracticable and would cause substantially increased travel time."

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

December 20, 2005

David Valenstein
Federal Railroad Administration
1120 Vermont Avenue, NW, MS 20
Washington, D.C. 20590

Subject: Bay Area to Central Valley California High Speed Train Programmatic Environmental Impact Report/Environmental Impact Statement

Dear Mr. Valenstein:

The U.S. Environmental Protection Agency (EPA) has reviewed the Federal Register Notice published on November 28, 2005, requesting comments on the Federal Railroad Administration (FRA) and California High Speed Rail Authority (CHSRA) decision to prepare a Draft Programmatic Environmental Impact Statement (Draft PEIS) for the Bay Area to Central Valley California High Speed Train. Our comments are provided pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508) and Section 309 of the Clean Air Act. Our detailed comments are enclosed.

We appreciate the close working relationship we have had with FRA and CHSRA as a cooperating agency on the statewide portion of this project. EPA supports the concept of a high speed train system in California that can facilitate the movement of people, while minimizing environmental impacts. We look forward to continuing our working relationship with you on the Bay Area to Central Valley Draft PEIS and subsequent environmental analysis that will follow this document.

EPA supports FRA and CHSRA's commitment to analyze a full range of alternatives connecting the Bay Area to Central Valley in a separate PEIS. This new document, including an Altamont Pass alternative, will ensure that the alignment carried forward for project-level study is most likely to contain the least environmentally damaging practicable alternative (LEDPA). Through our comments on the statewide Draft PEIS and interagency meetings, EPA has identified potential impacts to aquatic resources of national importance (CWA Section 404(q), 33 U.S.C. 1344(q)), wetlands and water quality, wildlife habitat, and endangered species that would result from the previously proposed Diablo Direct and Pacheco Pass alternatives. We indicated that EPA would have difficulty concurring on a Diablo Direct alignment as the LEDPA.

EPA's additional concerns are related to the cumulative impact analysis, impacts to biological species, and coordination with other regional and local transportation projects. EPA continues to be supportive of the concept of a high speed train connecting the Bay Area to the Central Valley, and we look forward to maintaining our working relationship with FRA and

CHSRA as we continue to coordinate on this important project. If you have any questions, please feel free to contact me at (415) 972-3988, or Connell Dunning and Erin Foresman, the lead EPA reviewers for this project. Connell can be reached at Dunning.Connell@epa.gov or (415) 947-4161 and Erin can be reached at Foresman.Erin@epa.gov or (415) 972-3396.

Sincerely,

Duane James, Manager
Environmental Review Office

Enclosures: EPA's Detailed Comments

cc: Dan Leavitt, California High Speed Rail Authority
Jane Hicks, San Francisco Army Corps of Engineers
Wayne White, U.S. Fish and Wildlife Service
Crawford Tuttle, California Resources Agency
Alan C. Lloyd, California Environmental Protection Agency
David Bunn, California Department of Fish and Game
Ashley Nguyen, Metropolitan Transportation Commission
Ian McEvoy, Caltrain

EPA DETAILED COMMENTS ON THE BAY AREA TO CENTRAL VALLEY CALIFORNIA HIGH SPEED TRAIN ENVIRONMENTAL IMPACT STATEMENT, DECEMBER 20, 2005

Interagency Coordination

The Environmental Protection Agency (EPA) commends the previous efforts of the Federal Railroad Administration (FRA) and the California High Speed Rail Authority (CHSRA) in coordinating with our agency to highlight the potential environmental impacts of a high speed train system for all of California as outlined in our April 2003 Interagency Memorandum of Understanding (MOU). The MOU outlines a process for integrating the requirements of the National Environmental Policy Act (NEPA) and Clean Water Act (CWA) Section 404 to streamline the environmental review process. For the upcoming Bay Area to Central Valley Draft Programmatic Environmental Impact Statement (Draft PEIS), EPA is available to continue to participate in interagency coordination meetings to discuss potential environmental concerns and solutions at the earliest possible opportunity.

Water Resources

The Clean Water Act Section 404(b)(1) Guidelines (Guidelines) at 40 CFR Part 230.10(a) state that ". . .no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences." FRA and CHSRA will have to demonstrate that potential impacts to waters of the United States have been avoided and minimized to the maximum extent practicable prior to obtaining a CWA Section 404 permit (40 CFR 230.10(a) and 230.10(d)).

Recommendations:

- Demonstrate that all potential impacts to waters of the United States have been avoided and minimized. If these resources cannot be avoided, the project-level analyses should clearly demonstrate how cost, logistical, or technological constraints preclude avoidance and minimization of impacts.

- Design measures and modifications to avoid and minimize impacts to water resources should be quantified for each alternative studied; for example, number of stream crossings avoided, acres of waters of the United States avoided, etc.

- Identify all protected resources with special designations and all special aquatic sites[1] and waters within state, local, and federal protected lands. Additional steps should be taken to avoid and minimize impacts to these areas.

- Include Tier 1 landscape-level data, such as:
    - A complete list of water bodies and streams impacted by proposed alignments that are mapped on USGS 7.5 minute maps, even if these water ways are not digitized.

[1] Special aquatic sites are defined at 40 CFR 230.40 – 230.45 and include wetlands, mud flats, vegetated shallows, coral reefs, and riffle and pool complexes.

USGS 7.5 minute maps are available electronically, and the USGS National Hydrography database should include streams appearing on 7.5 minute paper maps.

- An estimate of wetland area impacted by proposed alignments using the Fish and Wildlife Service produced National Wetlands Inventory (NWI) database.
- An estimate of vernal pool area impacted by proposed alignments using any available electronic data (e.g., Holland Vernal Pool data).
- California Gap Analysis electronic data
- Using these datasets, provide an estimate of "edge-area", to quantify habitat fragmentation caused by each alternative analyzed.

Diablo Direct and Pacheco Pass Alignments

Following our review of the statewide Draft PEIS, EPA raised objections to the Diablo Direct and Pacheco Pass alignments because they may cause significant adverse effects to the health of the aquatic ecosystem. In the Diablo Mountain Range, EPA designated the federally regulated waters in Del Puerto Creek, Salado Creek, Crow Creek, and Orestimba Creek watersheds of the Diablo Range, as aquatic resources of national importance under our Memorandum of Agreement (MOA) with the Department of the Army, pursuant to CWA Section 404(q) (33 U.S.C. 1344(q)). EPA also stated that the loss of wetlands associated with Pacheco Pass alignments, as well as the impacts to wildlife corridors and habitat fragmentation, are not consistent with the substantive binding requirements of CWA Section 404(b)(1) Guidelines (40 CFR 230.10 (a) and (c)). Specifically, the magnitude of impacts to special aquatic sites may cause or contribute to significant degradation of waters of the United States (40 CFR 230.10(c)).

In light of the potentially significant impacts that would result from the alternatives analyzed in the Draft PEIS, EPA also recommended consideration of other, potentially less damaging alternatives, including the Altamont Pass alternative. We have participated in numerous interagency meetings with FRA and CHSRA to discuss those alignments and reiterate the following recommendations:

Recommendations:

- Eliminate from further analysis any alternatives that impact the designated aquatic resources of national importance in Del Puerto Creek, Salado Creek, Crow Creek, and Orestimba Creek watersheds of the Diablo Range. EPA will carefully analyze any alternative that decreases the aquatic functions directly through discharges to waters in the Diablo Range, or indirectly through degrading upland resources, in our determination of compliance with the CWA Section 404(b)(1) Guidelines. Considering the high value aquatic resources and the potential for large-scale habitat fragmentation, EPA continues to believe that the Diablo Direct alignments do not appear to exhibit characteristics of the least environmentally damaging practicable alternative (LEDPA), the only alternative that can be permitted under the CWA Section 404 regulations (40 CFR 230.10 (a) and (c)).

- Incorporate significant alignment and design modifications into the proposed Pacheco Pass route to reduce impacts to waters of the United States and wildlife movement corridors.

- Analyze variations of an Altamont Pass alternative, including (1) an alignment without a Bay Crossing providing service to San Jose, San Francisco, and Oakland via high speed rail and existing light-rail, and (2) an alignment with a Bay Crossing on an improved Dumbarton Rail bridge.

Cumulative Impact Analysis

Cumulative impacts are defined in the Council on Environmental Quality's (CEQ) NEPA regulations as the impact on the environment that results from the incremental impact of the action when added to the other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such actions (40 CFR 1508.7). These actions include both transportation and non-transportation activities. The cumulative impact analysis should consider non-transportation projects such as large-scale developments and approved urban planning projects that are reasonably foreseeable and are identified within city and county planning documents. These types of projects, identified within and around the proposed high speed train system, should be included in the cumulative impacts analysis.

The cumulative impact analysis should describe the "identifiable present effects" to various resources attributed to past actions. The purpose of considering past actions is to determine the current health of resources. This information forms the baseline for assessing potential cumulative impacts and can be used to develop cooperative strategies for resources protection (CEQ's Forty Most Frequently Asked Questions #19).

The cumulative impact analysis for the project provides an opportunity to identify potential large, landscape-level statewide and regional impacts, as well as potential large-scale mitigation measures. The analysis should examine landscape-level impacts to all sensitive resources on a statewide and regional scale. The cumulative impact analysis should guide future project-level analyses and potential avoidance and minimization measures, while focusing design and mitigation efforts.

Recommendations:

EPA recommends that FRA and CHSRA conduct thorough cumulative impact assessment. The analysis should include a complete list of reasonably foreseeable actions, including non-transportation projects. EPA recommends that FRA and CHSRA use Caltrans recently published cumulative impacts guidance, which is applicable to cumulative impact analyses for non-road projects. This guidance can be found at [http://www.dot.ca.gov/ser/cumulative_guidance/purpose.htm].

Biological Resources

The Draft PEIS should describe efforts to avoid and/or minimize impacts to threatened and endangered species and associated habitats, as well as preserves, parks, and restoration and habitat management areas. Efforts to minimize or avoid impacts to resources should be presented with a quantification of specific resources avoided. Wildlife movement corridors may be affected by the placement of a proposed, fenced high speed train system where (1) the high speed train alignment would not be in an existing rail or highway corridor and would traverse natural areas, and (2) habitat use in existing rights-of-way occurs across roads and rail lines currently unobstructed by fences. The Draft PEIS should consistently address wildlife movement impacts from high speed train alignments considered in the Bay Area to Central Valley area. EPA provides the following additional recommendations related to biological resources:

Recommendations:

- Incorporate information developed for the California Missing Linkages Report. This document, and links to additional information can be found at the following website: http://scwildlands.org/missinglinks/reports/download_missinglinkages.htm

- Incorporate data developed for the statewide California Comprehensive Wildlife Conservation Strategy, which will be completed in early 2006. This strategy addresses 800 at-risk species and provides range maps. The range maps for these species are available from the California Department of Fish and Game. Updates regarding this strategy can be found on the following website: http://www.teaming.com/state_cwcs/california_cwcs.htm

- In addition to locating the available data indicating where species ranges may be bisected by the high speed train system, EPA recommends that FRA and CHSRA facilitate a meeting of scientists and local experts to explore the specific locations and design features for wildlife crossings that are needed throughout the high speed train system.

- Identify the connections that would likely remain after construction of the high speed train system and highlight these areas as "connectivity zones" for protection and preservation. Explore opportunities for preservation of these corridors through mitigation and cooperative agreements.

- Disclose how fencing the train route will affect wildlife movement and discuss how fencing for safety purposes will be integrated with proposed wildlife passages, such as culverts, bridges, viaducts, underpasses, and overpasses.

Relationship to Other Plans

The Metropolitan Transportation Commission (MTC), Bay Area Rapid Transit (BART), and Caltrain, along with a coalition of rail passenger and freight operators, are currently preparing a comprehensive Regional Rail Plan for the Bay Area, as required by the voters in the Regional Measure 2 (RM2) Traffic Congestion Relief Program. EPA is supportive of FRA and

CHSRA coordination with local transportation agencies to ensure that the Regional Rail Plan is integrated with the Bay Area to Central Valley high speed train system.

Coordination with local transportation agencies provides an opportunity to integrate high speed rail with plans for local service. EPA recommends that FRA and CHSRA take an active part in the planning for local projects that may limit the range of alternatives that can be analyzed for a high speed train system in the Bay Area to Central Valley region. FRA and CHSRA should support the deferment of decisions for specific project upgrades until a regional vision of rail for the Bay Area is completed. During the November 30, 2005 scoping meeting held in support of the Bay Area to Central Valley Draft PEIS and the Regional Rail Plan, a proposed project to improve Dumbarton Rail Bridge for traditional rail service and non-high speed commuting was discussed. The preparation of the environmental document for that project will coincide with the development of the Draft PEIS for the Bay Area to Central Valley High Speed Train. EPA is concerned that a decision to improve the Dumbarton Rail Bridge for traditional rail service may preclude this bridge from being considered in the full range of alternatives for high speed train service connecting the Bay Area to the Central Valley. EPA recommends FRA and CHSRA involvement in this, and other regional projects, in order to minimize duplication of efforts and conflicting transit goals.

United States Department of the Interior

FISH AND WILDLIFE SERVICE

San Luis National Wildlife Refuge Complex
Post Office Box 2176
Los Banos, California 93635

14 December 2005

VIA FAX AND MAIL

Mr. Dan Leavitt, Deputy Director
High-Speed Rail Authority
925 L Street, Suite 1425
Sacramento, CA 95814

Re: Initial comments on the scope of the Bay Area to Central Valley EIR/EIS

Dear Chairman Petrillo and Members of the High-Speed Rail Authority:

Enclosed please find a copy of the 22 November 2004 comment letter from the Office of the Secretary, U. S. Department of the Interior; commenting on the *Draft Program Environmental Impact Report and Environmental Impact Statement (DPEIR/EIS) for the Proposed California High-Speed Train System*. I understand that the High-Speed Rail Authority is currently working on a second and separate EIR/EIS that further addresses the Bay Area – Central Valley section of the System. To assure that all relevant comments are rolled into this second EIR/EIS, and to assist you in tracking these relevant issues, I am re-submitting the original U. S. Department of the Interior comment letter. I highlight, below, some of the relevant sections of the original letter that address this area:

Appendix 2

Additional information concerning Grasslands Ecological Area (Grasslands)

The Grasslands is a critical area for Pacific Flyway waterfowl populations, providing wintering habitat for 20 percent of the total population. Waterfowl populations wintering in the Grasslands average a half-million, with peak waterfowl numbers at one million. Several federally listed or proposed threatened and endangered species are known to occur either seasonally or year-round. As one of the largest remaining vernal pool complexes, Grasslands is home to many rare species associated with this disappearing habitat. San Joaquin kit fox (*Vulpes macrotis mutica*), Aleutian Canada geese (*Branta canadensis leucopareia*), Swainson's hawks (*Buteo swainsoni*), and tri-colored blackbirds (*Agelaius tricolor*) are also dependent upon the area. Less than five percent of the original four million acres of Central Valley wetlands remain. In recognition of the rich and critically important natural resources of the Grasslands, the conservation agencies have focused more attention and funding on this area than most areas of the State. There is a significant level of investment in maintaining the area's natural heritage, including two FWS national wildlife areas encompassing approximately 35,000 acres, a FWS conservation easement program that encompasses 70,000 acres on 170 separate private properties, six units of the California Department of Fish and Game wildlife areas encompassing approximately 25,000 acres, a California Department of Parks and Recreation state park, and an extremely active Natural Resources Conservation Service program. This area has garnered numerous habitat restoration and enhancement grants totaling millions of dollars, and is one of the most active areas statewide for conservation group involvement.

"Grasslands Ecological Area and Wetlands

The DPEIR/EIS makes no mention of the Grasslands Ecological Area (Grasslands), a 160,000-acre area located roughly in a triangle with the towns of Dos Palos, Los Banos and Gustine along the base of the triangle and Merced at the apex of the triangle. It is recognized for its diverse habitats and importance to a variety of wetland species. The habitat types present at Grasslands include seasonally flooded wetlands, semi-permanent marsh, woody riparian habitat, wet meadows, vernal pools, native uplands, grasslands, and native brush lands. Hundreds of thousands of shorebirds migrate through the area. Grasslands was officially recognized in 1991 by the Western Hemisphere Shorebird Reserve Network as one of only 15 internationally significant shorebird habitats and was recognized in 1999 by the American Bird Conservancy as a Globally Important Bird Area. In addition, it is currently being nominated as a Wetland of International Importance under the Ramsar Convention due to its importance to a variety of wildlife, including several rare and endangered species, its critical role as wintering habitat for Pacific Flyway waterfowl, and its status as the largest remaining block of wetlands in what was once a vast Central Valley ecosystem. Please be sure to recognize the importance of the Grasslands in the final EIR/EIS and, if possible, include alternatives that will fully avoid or minimize impacts to the Grasslands (please refer to Appendix 2 for more information on this critical ecological area).

SPECIFIC COMMENTS

Page S-5: Please evaluate the effects of growth inducement/accommodation on biological resources in the final EIR/EIS, particularly as implied for the Northern and Southern Mountain Crossing areas, and for small communities in the San Joaquin Valley. ... We are concerned that by encouraging long-distance commuting, the HST system could be facilitating urban sprawl and the negative environmental impacts associated with it.

Table S.5-1: This table predicts minimal population growth attributable to the proposed HST system. However, potential growth of smaller rural communities along the route (e.g., Gilroy, Merced, Los Banos, Modesto, Hanford and Visalia) is not predicted. Please include estimates of potential growth in the numerous smaller communities along the proposed HST corridor, and relate that growth to potential impacts to species and habitats identified in maps (Figures 1, 2, and 3) for the final EIR/EIS. [Figures 1, 2, and 3 are oversized maps and are being sent under separate cover.]

Page S-7: Table S-6.1 also states that the HST will "result in denser development...on less land," and "controlled growth around stations, urban in-fill; compatible with transit first policies." We believe this model may be appropriate for major metropolitan areas, but it does not fit well for smaller towns. Table S-6.1 indicates that the Modal Alternative would encourage urban sprawl throughout the Central Valley, and the HST system only around Merced. Please discuss the likelihood of impacts from suburban sprawl around the proposed station locations in the Final EIR/EIS.

Page S-15: The third paragraph suggests that growth rates for given areas will be determined by the HST alternative approved for construction. However, the DPEIR/EIS does not address potential cumulative growth inducement due to operation of the other Modal Alternative projects. Please include an assessment of the effects of the other Modal Alternative projects that will occur regardless of the status of the HST in the final EIR/EIS.

Page 2-35: The Department believes that further analysis of the Altamont Pass alignment alternative from the Bay Area to the Central Valley is warranted; however, serious environmental concerns are likely for a proposed bridge crossing of South San Francisco Bay. Please evaluate an alternative that would traverse the Diablo Range at the Altamont Pass, loop south to San Jose, then continue north to San Francisco, avoid a bay crossing, or one which tunnels under the bay. We suggest the existing (or an improved) Bay Area Rapid Transit (BART) system and other mass transit could easily serve the Oakland area from the stop in Hayward. This paragraph suggests that the Altamont Pass alignment was

eliminated because it does not avoid or substantially reduce potential environmental impacts. However, the impacts of the Altamont Pass alignment (if combined with no bay crossing or a tunneled bay crossing) would be lower, while the impacts associated with all of the proposed Northern Mountain crossings would be higher overall and would require substantially more mitigation. We recommend you include a more in-depth analysis of the relative environmental impacts of each of the considered and proposed alignments in the final EIR/EIS. Also, if possible, please reconsider the Altamont Pass alignment.

Page 2-38: The third paragraph states that an Altamont Pass alignment would have higher potential impacts on threatened and endangered species, but fewer impacts on major water crossings, parks and recreation, and visual impacts. The other proposed Northern Mountain crossings are in undeveloped areas, and would have significant impacts on threatened and endangered species. An Altamont Pass alignment with no bay crossing (or tunneled bay crossing) would result in a substantial reduction over the environmental impacts associated with the other proposed crossings (Diablo Range direct and Pacheco Pass alignments), while still providing for HST service to East Bay communities, the San Francisco peninsula, and San Jose.

Page 2-53: The Northern Mountain crossings, as proposed, are at odds with the Purpose and Need Statement on page S-2, which states that the HST system "should maximize the use of existing transportation corridors and rights-of-way..." The rejected Altamont Pass alignment alternative is along an existing transportation corridor, but the Diablo Range direct alternative and the Pacheco Pass alignment alternatives do not follow existing transportation corridors or rights-of-way, and will therefore have unnecessary additional environmental impacts. Please explain in the final EIR/EIS how you projected that the Pacheco Pass alignment would have 1.1 million more intercity riders per year than the Altamont Pass alignment. Please consider and evaluate, in the final EIR/EIS, potential use of the Altamont Pass alignment by the large and rapidly growing population centers at Stockton and Tracy. The projected 1.1 million difference between these two routes is only two-percent of the estimated total ridership of 68 million and could be within the margin of error for this projection. Additionally, the stated reason for rejection of the Altamont Pass alignment is the three-way split at Newark/Fremont; however, this may provide opportunities for an improved intra-Bay Area transportation system, which would have lower overall environmental impacts (see Page 2-35 comments).

Page 2-53: The potential impacts to wildlife, listed species, and undeveloped lands (which provide very important wildlife habitat in the region) in the Diablo Range would be substantial and compensating for these impacts would be extremely difficult. Critical habitat for the bay checkerspot butterfly and proposed critical habitat for the California red-legged frog could be adversely affected or destroyed. Recovery efforts for both of these species may be compromised by these losses, particularly for the bay checkerspot butterfly, which has a very limited distribution. The loss of any serpentine habitat could be a substantial impact. Most direct impacts to serpentine habitat could be avoided by completely tunneling under areas containing serpentine habitat and by placing tunnel entrances/exits outside of this habitat type. Please include an alternative that completely avoids direct impacts to critical habitats for these two species.

Page 2-53: The portion of the Diablo Range to be impacted by these proposed crossings has been recognized for its important natural resources. The Nature Conservancy owns fee title and easements on 61,000 acres in this area, as part of its Mount Hamilton Project. The FWS has helped to fund that effort, and has identified the same area as a potential addition to the National Wildlife Refuge System. Please describe impacts of the Diablo Range direct alignment in the final EIR/EIS, with these concerns and conservation efforts in mind.

Page 3.15-7: There are significant natural resource concerns related to the proposed Northern Mountain crossings. The Diablo Range alignments would result in substantial direct and indirect impacts to federally listed wildlife species in the region, including the endangered San Joaquin kit fox, the

threatened California red-legged frog, the threatened bay checkerspot butterfly, and the threatened California tiger salamander, as well as various threatened and endangered plant species. The HST corridor (as well as any access roads needed for construction/ operations/ maintenance) would result in fragmented wildlife habitat, noise impacts to wildlife, direct and indirect loss of habitat, hydrologic changes that may negatively impact wildlife/plant species, increased risk of colonization by invasive plant species, and disruption of seasonal and daily wildlife movements. Noise associated with the HST may cause many species of wildlife (including the San Joaquin kit fox) to avoid a substantial area of otherwise suitable habitat near the rail line, resulting in habitat loss above and beyond the actual project footprint".

Thank you for allowing this opportunity to comment on the Bay Area to Central Valley EIR/EIS.

Sincerely,

Kim Forrest
Refuge Manager

Cc: Susan Jones, Branch Chief; Endangered Species Program; FWS
Larry Butcher, Biologist; Endangered Species Program; FWS
Dan Walsworth, Refuge Supervisor; National Wildlife Refuge System; FWS
Don Marciochi, Manager; Grassland Water District
Julie Vance, Sr. Environmental Scientist, Permitting/Conservation Planning; CDFG
Frederic Reid, Chair; Central Valley Joint Venture
Tom Enslow, Attorney; Adams Broadwell Joseph & Cardozo

United States Department of the Interior
OFFICE OF THE SECRETARY
Washington, DC 20240

TAKE PRIDE IN AMERICA

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NOV 2 2 2004

Mr. David Valenstein
Federal Railroad Administration
1120 Vermont Avenue, MS-20
Washington, DC 20590

Dear Mr. Valenstein:

The Department of the Interior has reviewed the Draft Program Environmental Impact Report and Environmental Impact Statement (DPEIR/EIS) for the Proposed **California High-Speed Train System**, extending from Sacramento and the San Francisco Bay Area through the Central Valley to Los Angeles and San Diego, California. We have the following comments.

GENERAL COMMENTS

The Department is concerned that the DPEIR/EIS is written in such general terms that it is difficult to reliably assess the impacts of the proposed action or to compare effects among alternatives. The document presents little or no difference between the No Action and Modal Alternatives. Please include more specific information to improve the analysis of impacts in the final EIR/EIS. This will allow the Department to assess and compare impacts of the alternatives in the final EIR/EIS.

Best Available Information

We are also concerned that many of the Modal Alternatives are not based on the most current information. A number of projects listed as Modal Alternatives are currently in the planning stage and are often more extensive than presented in the DPEIR/EIS. For example, the widening of I-5 between Oceanside and the I-5/805 split is currently in the NEPA/404 integration process with the resource agencies. The preferred alternative currently proposed by the California Department of Transportation (Caltrans) and the San Diego Association of Governments (SANDAG) includes five general-purpose lanes in each direction and two High-Occupancy-Vehicle (HOV) lanes for a total of fourteen lanes. This is significantly different than the Modal Alternative presented in the DPEIR/EIS, which includes the existing eight lanes (four in each direction) and two additional lanes (one in each direction) for a total of ten lanes. Please update the discussion and analysis of Modal Alternatives in the final EIR/EIS so that the impacts can be better understood and all alternatives can be meaningfully compared.

Endangered Species Act (ESA)

There are a large number of Departmental Habitat Conservation Plans (HCPs), fashioned through the FWS, under section 10(a)l(B) of the ESA (1969) as amended, which are in place or will be in place in the near future for southern California but not mentioned in the DPEIR/EIS. The implementation and future success of the following HCPs may be impacted by the proposed HST system: City and County of San Diego Multiple Species Conservation Program (MSCP); North San Diego Coastal Cities Multiple Habitat Conservation Program (MHCP); North San Diego County MSCP Subarea Plan; Western Riverside Multiple Species Habitat Conservation Program (MSHCP); Southern Orange County Natural Community Conservation Program (NCCP)/HCP; Tejon Ranch HCP; and Central/Coastal Orange County NCCP/HCP. Please include an assessment of impacts to implementation and potential success of these and other ongoing HCPs in the final EIR/EIS.

The DPEIR/EIS does not evaluate potential impacts to designated and/or proposed critical habitat for federally listed species including: the Quino checkerspot butterfly (*Euphydryas editha quino*), bay checkerspot butterfly (*Euphydryas editha bayensis*), tidewater goby (*Eucyclogobius newberryi*), California condor (*Gymnogyps californianus*), least Bell's vireo (*Vireo bellii pusillus*), coastal California gnatcatcher (*Polioptila californica californica*), San Bernardino kangaroo rat (*Dipodomys merriami parvus*), Alameda whipsnake (*Masticophis lateralis euryxanthus*), California red-legged frog (*Rana aurora draytonii*), vernal pool tadpole shrimp (*Lepidurus packardi*), vernal pool fairy shrimp (*Branchinecta lynchi*), and San Diego fairy shrimp (*Branchinecta sandiegonensis*). A number of federally listed species [i.e., arroyo toad (*Bufo californicus*), California tiger salamander (*Ambystoma californiense*), Riverside fairy shrimp (*Streptocephalus woottoni*), southwestern willow flycatcher (*Empidonax traillii extimus*), Buena Vista Lake shrew (*Sorex ornatus relictus*) and Santa Ana sucker (*Catostomus santaanae*) will have proposed and likely final critical habitat designated in the next few years, which will require re-analysis of potential impacts. The attached maps (Figures 1, 2, and 3) show areas of critical habitat with the potential to be impacted by the proposed HST. Please address potential impacts to designated and proposed critical habitat for federally listed species (above) in the effects and/or cumulative effects section(s) of the final EIR/EIS.

The DPEIR/EIS is unclear as to how, or whether, the Federal Railroad Administration (FRA) and the U.S. Corps of Engineers (Corps) will satisfy the requirements of Section 7 of the ESA. We recommend that the FRA prepare and submit a Biological Assessment (BA) for consultation on this proposal to the FWS as early as possible in the environmental planning/analysis process. This would provide the FRA the opportunity to better and more efficiently integrate their responsibilities under Section 7(a)(1) of the ESA at the program level. Within the action area (all areas to be affected indirectly or directly by the proposed action): 1) identify the conservation needs of each listed species with the potential to be impacted by the proposal; 2) identify the threats to

each listed species' conservation, both range-wide and within the action area; 3) identify species conservation or management units and the threats affecting those units; 4) identify species' conservation goals framed within the context of the HST program; and 5) develop conservation/management unit strategies for implementing future (project-level) activities.

Fish and Wildlife Coordination Act (FWCA)

Pursuant to the FWCA, the Department (via the FWS) often advises the Corps on projects involving dredge and fill activities in "waters of the United States." Following the HST programmatic effort (i.e., during development of the individual HST project elements), it is likely that portions of the project affecting wetlands and riparian areas will require Corps permits pursuant to Section 404 of the Clean Water Act (CWA) and/or Section 10 of the Rivers and Harbors Act (RHA) of 1899. Please refer to Appendix 1 for a list of criteria for dredge and fill activities used by the FWS. The FWS has recommended that you include these criteria in the preferred alternative of the final EIR/EIS and use these criteria when selecting and designing HST project elements and locations to avoid or minimize wetland, riparian, fish/wildlife, and water quality impacts. Doing so would not only enhance coordination under the FWCA, but would be prudent given the absence of more specific information on the exact locations and overall extent of dredge and fill activities in the DPEIR/EIS.

Grasslands Ecological Area and Wetlands

The DPEIR/EIS makes no mention of the Grasslands Ecological Area (Grasslands), a 160,000-acre area located roughly in a triangle with the towns of Dos Palos, Los Banos and Gustine along the base of the triangle and Merced at the apex of the triangle. It is recognized for its diverse habitats and importance to a variety of wetland species. The habitat types present at Grasslands include seasonally flooded wetlands, semi-permanent marsh, woody riparian habitat, wet meadows, vernal pools, native uplands, grasslands, and native brush lands. Hundreds of thousands of shorebirds migrate through the area. Grasslands was officially recognized in 1991 by the Western Hemisphere Shorebird Reserve Network as one of only 15 internationally significant shorebird habitats and was recognized in 1999 by the American Bird Conservancy as a Globally Important Bird Area. In addition, it is currently being nominated as a Wetland of International Importance under the Ramsar Convention due to its importance to a variety of wildlife, including several rare and endangered species, its critical role as wintering habitat for Pacific Flyway waterfowl, and its status as the largest remaining block of wetlands in what was once a vast Central Valley ecosystem. Please be sure to recognize the importance of the Grasslands in the final EIR/EIS and, if possible, include alternatives that will fully avoid or minimize impacts to the Grasslands (please refer to Appendix 2 for more information on this critical ecological area).

Cumulative Impacts Analyses

The DPEIR/EIS does not fully address the growth inducement/accommodation that could result from the HST. Please address the potential inducement/accommodation of new development along the HST corridors in the effects and/or cumulative effects section(s) of the final EIR/EIS. Please discuss the possibility that commute time would not provide a strong disincentive for relocation to outlying areas, and that local or overall development demands would increase.

The DPEIR/EIS does not address current efforts to expand existing, or construct new, airport facilities. Please address current and planned airport facility expansion in the cumulative effects section of the final EIR/EIS. Examples include current planning efforts for: (a) expansion of Los Angeles International Airport (LAX); (b) expansion of Lindberg Field and/or construction of a new airport in the San Diego region; and (c) expansion of the San Francisco International Airport (SFO).

SPECIFIC COMMENTS

Page S-5: Please evaluate the effects of growth inducement/accommodation on biological resources in the final EIR/EIS, particularly as implied for the Northern and Southern Mountain Crossing areas, and for small communities in the San Joaquin Valley. The DPEIR/EIS states that "the Antelope Valley SR-58/Soledad Canyon could provide superior connectivity and accessibility to the Antelope Valley and would have a higher potential for serving long-distance commuters to Los Angeles." We are concerned that by encouraging long-distance commuting, the HST system could be facilitating urban sprawl and the negative environmental impacts associated with it.

Table S.5-1: This table predicts minimal population growth attributable to the proposed HST system. However, potential growth of smaller rural communities along the route (e.g., Gilroy, Merced, Los Banos, Modesto, Hanford and Visalia) is not predicted. Please include estimates of potential growth in the numerous smaller communities along the proposed HST corridor, and relate that growth to potential impacts to species and habitats identified in maps (Figures 1, 2, and 3) for the final EIR/EIS. **[Figures 1, 2, and 3 are oversized maps and are being sent under separate cover.]**

Page S-7: Table S-6.1 also states that the HST will "result in denser development...on less land," and "controlled growth around stations, urban in-fill; compatible with transit-first policies." We believe this model may be appropriate for major metropolitan areas, but it does not fit well for smaller towns. Table S-6.1 indicates that the Modal Alternative would encourage urban sprawl throughout the Central Valley, and the HST system only around Merced. Please discuss the likelihood of impacts from suburban sprawl around the proposed station locations in the Final EIR/EIS.

Page S-15: The third paragraph suggests that growth rates for given areas will be determined by the HST alternative approved for construction. However, the DPEIR/EIS does not address potential cumulative growth inducement due to operation of the other Modal Alternative projects. Please include an assessment of the effects of the other Modal Alternative projects that will occur regardless of the status of the HST in the final EIR/EIS.

Purpose and Need

Page 1-6: In the Purpose and Need section is a discussion about increasing air travel from 1992 to the present. However, since September 11, 2001, air travel has dropped off significantly. Has this trend reversed completely, i.e., has air travel increased over pre-September 11 travel? What date does the term "present" represent? Please clarify this discussion in the final EIR/EIS.

Pages 1-6&7: It is not immediately evident in the DPEIR/EIS that there will be a future need for increased infrastructure to support the HST ridership. How will rail travelers access and utilize the new rail system without a planned increase in local infrastructure? Please identify and evaluate impacts associated with necessary infrastructure and supporting mass transit system for the HST in the final EIR/EIS.

Pages 1-6&7: The Department understands that there are current, ongoing consultations with the regulatory agencies on expansion of LAX. Based on those consultations, it appears that the current planning efforts for LAX are not identified in this DPEIR/EIS. As such, many of the assumptions in the DPEIR/EIS may be based on older data. Please update the final EIR/EIS with more recent information on current plans, including likely consultation outcomes, for LAX.

Alternatives

The Department believes the range of alternatives in the DPEIR/EIS is not wide enough to encompass the conflicting resource issues, planning complexities, and wide variety of environmental impacts and concerns raised during scoping (see specific technical, procedural and biological comments below). The Department recommends the development and analysis of a Lower Impact Alternative using alternative transport options of train, air, and highway improvements. This Alternative would not only better focus transportation efforts on the areas of greatest need, it would eliminate costly and unnecessary expenses (such as hundreds of miles of rail), move people off the highway system, and reduce the negative environmental impacts which are predicted to occur otherwise across the California landscape.

Page 2-16: If air travel trips greater than 150 miles in length would be competitive, we suggest this type of travel be included in the mix of the Low Impact Alternative.

Page 2-18: The Department supports the concept of constructing aerial lanes over existing lanes whenever feasible to reduce impacts to the natural environment.

Table 2.5-1: The highway improvements presented are not based on the best available information. Many of the projects in this table are currently being planned as much wider thoroughfares. In addition, more recent regional transportation plans (RTPs) and NEPA/CEQA documents discuss larger projects than are presented in the table (e.g., SANDAG's 2030 Mobility Plan, Southern California Association of Government's Destination 2030). Please include all projects currently in the planning phase in the No Project Alternative for the final EIR/EIS.

Table 2.5-2: The Aviation Improvements presented in this table are not consistent with local planning efforts in San Diego, Orange, Los Angeles, Riverside, and Imperial Counties. Please update the final EIR/EIS to include local planning efforts.

Page 2-25: Please clarify in the final EIR/EIS whether the number of trains per day is in each direction or total trains on the track.

Page 2-35: The Department believes that further analysis of the Altamont Pass alignment alternative from the Bay Area to the Central Valley is warranted; however, serious environmental concerns are likely for a proposed bridge crossing of South San Francisco Bay. Please evaluate an alternative that would traverse the Diablo Range at the Altamont Pass, loop south to San Jose, then continue north to San Francisco, avoid a bay crossing, or one which tunnels under the bay. We suggest the existing (or an improved) Bay Area Rapid Transit (BART) system and other mass transit could easily serve the Oakland area from the stop in Hayward.

This paragraph suggests that the Altamont Pass alignment was eliminated because it does not avoid or substantially reduce potential environmental impacts. However, the impacts of the Altamont Pass alignment (if combined with no bay crossing or a tunneled bay crossing) would be lower, while the impacts associated with all of the proposed Northern Mountain crossings would be higher overall and would require substantially more mitigation. We recommend you include a more in-depth analysis of the relative environmental impacts of each of the considered and proposed alignments in the final EIR/EIS. Also, if possible, please reconsider the Altamont Pass alignment.

Page 2-38: The third paragraph states that an Altamont Pass alignment would have higher potential impacts on threatened and endangered species, but fewer impacts on major water crossings, parks and recreation, and visual impacts. The other proposed Northern Mountain crossings are in undeveloped areas, and would have significant impacts on threatened and endangered species. An Altamont Pass alignment with no bay crossing (or tunneled bay crossing) would result in a substantial reduction over the environmental impacts associated with the other proposed crossings (Diablo Range

direct and Pacheco Pass alignments), while still providing for HST service to East Bay communities, the San Francisco peninsula, and San Jose.

Page 2-40: Please edit the statement in the second bullet from top to reflect that the lagoons are also home to a number of resident avian species that are protected under State and Federal law.

Page 2-51: The California red-legged frog and the San Francisco garter snake (*Thamnophis sirtalis tetrataenia*) are known to inhabit areas near SFO and could be potentially impacted by the San Francisco-San Jose alignment along the Caltrain Corridor. In the area of San Bruno Mountain, listed butterfly species could potentially be impacted, including the calippe silverspot butterfly (*Speyeria callippe callippe*), the mission blue butterfly (*Icaricia icarioides missionensis*), and the San Bruno elfin butterfly (*Callophrys mossii bayensis*). These potential impacts should be discussed in the final EIR/EIS.

Page 2-52: The proposed Hayward/Niles/Mulford alignment would result in significant environmental impacts to the San Francisco Bay National Wildlife Refuge (SFBNWR). Construction and operation of the HST system along this alignment would result in substantial impacts to existing tidal marshes/salt ponds as well as areas being considered for tidal marsh restoration. The full extent of these impacts cannot be accurately determined without more specific project information for this area coupled with a better understanding of future tidal marsh restoration efforts that will be undertaken in this area. Additionally, along the Mulford Line on Station Island is the ghost town of Drawbridge, which is an important cultural resource that would be impacted by this proposed alignment. For all of the above reasons, we suggest the Hayward/Niles/Mulford alignment be removed from further consideration and the Hayward/I-880 alignment be used instead.

Page 2-53: The Northern Mountain crossings, as proposed, are at odds with the Purpose and Need Statement on page S-2, which states that the HST system "should maximize the use of existing transportation corridors and rights-of-way..." The rejected Altamont Pass alignment alternative is along an existing transportation corridor, but the Diablo Range direct alternative and the Pacheco Pass alignment alternatives do not follow existing transportation corridors or rights-of-way, and will therefore have unnecessary additional environmental impacts. Please explain in the final EIR/EIS how you projected that the Pacheco Pass alignment would have 1.1 million more intercity riders per year than the Altamont Pass alignment. Please consider and evaluate, in the final EIR/EIS, potential use of the Altamont Pass alignment by the large and rapidly growing population centers at Stockton and Tracy. The projected 1.1 million difference between these two routes is only two-percent of the estimated total ridership of 68 million and could be within the margin of error for this projection. Additionally, the stated reason for rejection of the Altamont Pass alignment is the three-way split at Newark/Fremont; however, this may provide opportunities for an improved intra-Bay

Area transportation system, which would have lower overall environmental impacts (see Page 2-35 comments).

Page 2-53: The potential impacts to wildlife, listed species, and undeveloped lands (which provide very important wildlife habitat in the region) in the Diablo Range would be substantial and compensating for these impacts would be extremely difficult. Critical habitat for the bay checkerspot butterfly and proposed critical habitat for the California red-legged frog could be adversely affected or destroyed. Recovery efforts for both of these species may be compromised by these losses, particularly for the bay checkerspot butterfly, which has a very limited distribution. The loss of any serpentine habitat could be a substantial impact. Most direct impacts to serpentine habitat could be avoided by completely tunneling under areas containing serpentine habitat and by placing tunnel entrances/exits outside of this habitat type. Please include an alternative that completely avoids direct impacts to critical habitats for these two species.

Page 2-53: The portion of the Diablo Range to be impacted by these proposed crossings has been recognized for its important natural resources. The Nature Conservancy owns fee title and easements on 61,000 acres in this area, as part of its Mount Hamilton Project. The FWS has helped to fund that effort, and has identified the same area as a potential addition to the National Wildlife Refuge System. Please describe impacts of the Diablo Range direct alignment in the final EIR/EIS, with these concerns and conservation efforts in mind.

Page 2-81: The DPEIR/EIS does not clearly and accurately address wildlife issues along the I-215/I-15 corridor, from Riverside to San Diego. This corridor has numerous habitat types occupied by a variety of species covered by the western Riverside MSHCP, the in-progress North San Diego County MHCP, and the existing San Diego County and City of San Diego MSCPs. In particular, and as described in each of these HCPs, there are a number of core habitat areas, linkages and constrained linkages, and a variety of endangered species using the corridor. There are also complex planning issues that have not been addressed by the DPEIR/EIS. Please include in the final EIR/EIS a discussion of how the HST planning effort relates to the Federal Highway Administration priority streamlining projects in the Community and Environmental Transportation Acceptability Process (CETAP) for Western Riverside County. For example, CETAP projects we are aware of include major improvements along Winchester Road and the widening of I-15 and I-215.

Page 2-82: We are concerned with the alignment connecting the HST from the I-15 corridor to the LOSSAN corridor through Carroll Canyon open space within the city of San Diego's MSCP preserve. The Mira Mesa alternative avoids the Carroll Canyon open space and would be consistent with the City of San Diego MSCP. In addition, the alignment where Carroll Canyon and Mira Mesa routes combine should be designed to avoid impacts to endangered species habitat (coastal California gnatcatcher, vernal pool species) along the northern border of Miramar.

Page 2-82: The southern border of Qualcomm Stadium is the San Diego River, which is occupied by numerous least Bell's vireo. Therefore, we recommend that the HST terminate north of the river and all project construction impacts at the Stadium occur within existing disturbed and developed areas. Seasonal restrictions on construction and maintenance activities, and reduced project operation (limited or reduced scheduling) would probably need to be considered and implemented between September 15 and March 14 to avoid the least Bell's vireo breeding season.

Page 2-94: In Orange County, there are likely to be serious concerns with the alignment that follows Trabuco Creek. Based on LOSSAN planning documents for this area, the route presented will directly impact the unchannelized portion of Trabuco Creek. To build this alternative, the creek channel would require armament to protect the rail line from flood events in the Trabuco Creek Watershed. This would pose significant threats to the southern steelhead (*Oncorhynchus mykiss*) recently detected in Trabuco Creek. Therefore, alternatives that avoid this impact should be included and evaluated in the final EIR/EIS.

Land Use Planning

The Modal Alternative discusses expansions at LAX and widening projects along I-5, I-10, I-15, I-215, and SR-163 that are likely to occur regardless of the construction of the HST project. Please discuss the relationship with HCP planning efforts (see General Comment 2) that are either already approved or will likely be approved prior to start of tiered level planning for constructing the HST in the final EIR/EIS. In particular, there are numerous wildlife corridors and linkages that are not addressed in the DPEIR/EIS (e.g., Carrol/Soledad Canyons identified in the western Riverside MSHCP, and Sandy Mush Road area in Merced County identified in the Recovery Plan for Upland Species of the San Joaquin Valley). Please explain the relationship of the various alternatives to completed and ongoing HCP planning efforts in the final EIR/EIS.

Please refer to and address the information contained on maps attached to these comments both in the final EIR/EIS and when making subsequent decisions on land use planning, project design elements and corridor locations (see attached Figures 1-3).

Hydrology and Water Resources

This section does not sufficiently address potential impacts to estuarine functions and processes in the coastal lagoons in San Diego County. Current planning efforts with SANDAG, Caltrans and local resource agencies are evaluating other transportation projects along Pacific Coast Highway, I-5, and El Camino Real that could also impact these lagoons. Please discuss in the final EIR/EIS how double tracking along the LOSSAN corridor will be integrated with these other transportation projects to minimize individual and cumulative impacts on estuarine functions and processes.

Please refer to maps attached to these comments when evaluating hydrologic and water quality impacts from project design elements and corridor locations. (See attached Figures 1-3). Other hydrologic information relevant to this effort includes the National Wetland Inventory maps available at http://www.NWI.fws.gov.

Figure 3.14-4: Please include the coastal lagoons in San Diego County as surface waters in the final EIR/EIS, as the discussion on page 3.14-4 correctly describes surface waters as including coastal estuaries and lagoons.

Figure 3.14-8: Erodible soils will be a significant issue for both the LOSSAN alignment and the inland route from Los Angeles to San Diego. This issue needs to be more clearly discussed in the final EIR/EIS because sediment accretion in the coastal waters is a major threat to State- and federally-listed species and those species covered under local HCPs.

Page 3.14-8: Please add Los Penasquitos Lagoon to the list of surface waters. Project level design should avoid all impacts from locating the HST in flood plains. Please include in all alternatives the use of bridges that are adequately designed for crossing over all surface waters and tributaries to avoid or minimize potential impacts to hydraulic functions and processes as well as allow for migratory corridors and habitat linkages.

Page 3.14-9: The DPEIR/EIS appears inconsistent with regional transportation planning efforts in San Diego County. The No Project alternative includes widening projects that will be designed to improve surface water and floodplain constrictions that currently exist due to past construction practices. Please update the final EIR/EIS to include efforts currently being coordinated with transportation planners and resource agencies to alleviate problems created by past construction practices. For example, the Modal Alternative description in the DPEIR/EIS appears out of date with current plans. Please update the Modal Alternative to reflect recent changes in the planning process.

Page 3.14-18: While the tunneling under Camino Del Mar and opening up areas of the rail structure across Los Penasquitos Lagoon would potentially improve estuarine functions and processes, removing the rail from Los Penasquitos by tunneling under I-5 would avoid impacts to the lagoon and significantly improve Los Penasquitos Lagoon hydrologically, as wildlife habitat, and for visual aesthetics. Similarly, running the rail line south of and along the existing road along the south side of San Dieguito Lagoon would result in limited lagoon impacts.

Biological Resources and Wetlands

Please include an analysis in the final EIR/EIS of impacts to biological resources and wetlands including, but not limited to, indirect effects from increased speed and frequency of trains along all of the corridors. As trains become faster and more

frequent, the probability of striking wildlife inhabiting these areas increases. Both the HST and the double tracking of the LOSSAN corridor would have significant impacts on wildlife from increased train traffic and speed. Though the train corridor would be fenced in areas where the train travels at grade, fences do not ensure that wildlife will not gain access to fenced rights-of-way. Fences often contribute to mortality by trapping animals that manage to circumvent the fence. Additionally, fencing will not keep smaller amphibians, reptiles and mammals from accessing the rail right-of-way. Larger animals will be able to access the right-of-way by circumventing the ends of the fence and by exploiting areas where the integrity of the fence has been compromised. We recommend that consideration be given to the use of tunnels or elevated track in important wildlife habitat and migration areas to reduce potentially significant mortality impacts as well as to maintain habitat connectivity.

Please refer to maps (Figures 1-3) to these comments both in the final EIR/EIS and when making subsequent decisions on project alternatives, design elements and potential corridor locations. Other relevant information to evaluate project impacts on wetlands includes the National Wetland Inventory maps available at http://www.NWI.fws.gov.

Figure 3.15-1: This figure inadequately outlines areas of San Joaquin kit fox habitat. The figure does not identify important population linkage areas that connect core and satellite San Joaquin kit fox populations. Please refer to Figures 1 and 2 which identify these areas within the San Joaquin Valley. Populations of San Joaquin kit fox lying outside of the San Joaquin Valley (i.e., San Benito County) not shown in these figures, should also be included. Documented sightings of San Joaquin kit fox are also shown on these figures.

Figure 3.15-3A: See above comments for Figure 3.15-1.

Page 3.15-6: Please address impacts to the San Francisco Bay National Wildlife Refuge (SFBNWR) in the final EIR/EIS. For example, impacts along the Mulford alignment could substantially hinder the attainment of recovery objectives for the California clapper rail (*Rallus longirostrisobsoletus*) and the salt marsh harvest mouse (*Reithrodontomys raviventris*). Additionally, other federally listed species such as the western snowy plover (*Charadrius alexandrinus nivosus*), and Contra Costa goldfields (*Lasthenia conjugens*), and vernal pool species have the potential to be impacted by the proposed Mulford alignment.

Page 3.15-7: There are significant natural resource concerns related to the proposed Northern Mountain crossings. The Diablo Range alignments would result in substantial direct and indirect impacts to federally listed wildlife species in the region, including the endangered San Joaquin kit fox, the threatened California red-legged frog, the threatened bay checkerspot butterfly, and the threatened California tiger salamander, as well as various threatened and endangered plant species. The HST corridor (as well as

any access roads needed for construction/ operations/ maintenance) would result in fragmented wildlife habitat, noise impacts to wildlife, direct and indirect loss of habitat, hydrologic changes that may negatively impact wildlife/plant species, increased risk of colonization by invasive plant species, and disruption of seasonal and daily wildlife movements. Noise associated with the HST may cause many species of wildlife (including the San Joaquin kit fox) to avoid a substantial area of otherwise suitable habitat near the rail line, resulting in habitat loss above and beyond the actual project footprint.

Page 3.15-12: The DPEIR/EIS is missing important information on significant biological resources along the Los Angeles to San Diego Inland Empire corridor. For example, there are numerous areas of natural vegetation (particularly south of Temecula) and wildlife corridors and linkages that occur along this proposed corridor. Please coordinate any planning efforts for HST along this route with the western Riverside MSHCP and the North San Diego County MHCP.

Page 3.15-14: The Carroll Canyon area is an important feature in the San Diego County regional conservation strategy. Please consider and include an alternative to placing a new HST corridor along or through this important wildlife corridor/linkage in the final EIR/EIS.

Page 3.15-14: The Conservation Plans discussion is lacking important information. Please ensure that the proposed HST will be consistent with the existing and proposed HCPs (see General Comment 2).

Page 3.15-15: The information provided in the DPEIR/EIS regarding critical habitat is mostly incorrect. Arroyo toad critical habitat was designated in 2001 (66 FR 9414, 66 FR 13656), but has since been vacated until a new final rule is issued. Quino checkerspot critical habitat was designated on April 15, 2002 (67 FR 18356). Riverside fairy shrimp critical habitat was designated on May 30, 2001 (66 FR 29384), but was remanded and vacated until a new final rule is issued. San Bernardino kangaroo rat critical habitat was designated on April 23, 2002 (67 FR 19812). San Diego fairy shrimp critical habitat was designated on October 23, 2001 (65 FR 63438), and was remanded but not vacated until a new final rule is issued. Southwestern willow flycatcher critical habitat was designated on July 22, 1997 (62 FR 39129), and was set aside until a new final rule is issued. Tidewater goby critical habitat was designated on June 28, 2000 (65 FR 39850), and was remanded and partially vacated for Agua Hedionda Lagoon (Unit 10) until a new final rule is issued.

Page 3.15-16: Federally listed species that may occur along the LOSSAN corridor and not addressed in the DPEIR/EIS include San Diego ambrosia (*Ambrosia pumila*), San Diego mesa mint (*Pogogyne abramsii*), and thread leaved brodiaea (*Brodiaea filifolia*). In addition, there are a number of species and habitat types not mentioned that occur

along various portions of the proposed alignments that are State listed species and/or species covered under HCPs (e.g., Belding's savannah sparrow).

Page 3.15-28: There are a number of wildlife corridors and linkages that are described in regional conservation planning documents that are not included in this document including Temecula Creek, Trabuco Creek and Carroll Canyon. Please include all of the wildlife corridors and linkages designated in local and regional conservation planning efforts in the final EIR/EIS.

Page 3.15-31: The Environmental Consequences and Mitigation Strategies should include all of the wetland impacts and mitigation measures across the coastal lagoons in San Diego County that will result from double tracking the LOSSAN corridor. Current planning efforts along the LOSSAN corridor include removing areas of existing fill and running extended causeways to offset new impacts associated with new fill for double tracking. There will be improvements in the lagoons when existing bridges and their wooden pilings are replaced with single span concrete piling structures. In addition, these new bridges would not require clearing and maintenance activities currently necessary to protect existing wooden piling structures from fire.

We appreciate the opportunity to provide these comments and apologize for the lateness of them.

Sincerely,

Willie R. Taylor

Willie R. Taylor
Director, Office of Environmental Policy
and Compliance

Attachments: Appendices 1 and 2
[Figures 1, 2 and 3 are oversized maps sent under separate cover to FRA only]

cc:
California High-Speed Rail Authority
EIR/EIS Comments
925 L Street, Suite 1425
Sacramento, California 95814

Appendix 1

The U.S. Fish and Wildlife Service's (FWS) Mitigation Policy of January 23, 1981, as issued in the Federal Register Vol. 46(15): 7656-7663, outlines how the agency will work with partners to help mitigate any adverse impacts from land and water development projects on fish, wildlife, and their habitats. Its purpose is to help assure consistent and effective recommendations by outlining policy for the levels of mitigation needed, as well as the various methods for accomplishing the mitigation. In addition, it allows Federal action agencies and private developers to anticipate FWS recommendations and plan for mitigation measures early, thus avoiding delays late in the planning process. The policy is meant to provide guidance for FWS personnel; variations appropriate to individual circumstances are expected and permitted.

The FWS reviews a variety of criteria to outline mitigation recommendations and determine the agency's position on a specific project or proposal. The criteria are not mutually exclusive, and are meant to provide a framework for the FWS to fulfill its technical assistance role to partner Federal action agencies and the public. The action agencies are then charged with making the final decision to approve the proposal and require some level of mitigation, if appropriate. In this process, the FWS considers whether:

(1) Proposals are ecologically sound;
(2) The least environmentally damaging reasonable alternative is selected;
(3) Every reasonable effort is made to avoid or minimize damage or loss of fish and wildlife resources and uses;
(4) All important recommended means and measures have been adopted with guaranteed implementation to satisfactorily compensate for unavoidable damage or loss consistent with the appropriate mitigation goal; and
(5) For wetlands and shallow water habitats, the proposed activity is clearly water dependent and there is a demonstrated public need.

In addition, Council on Environmental Quality regulations for implementing the National Environmental Policy Act define mitigation to include: (1) avoiding the impact; (2) minimizing the impact; (3) rectifying the impact; (4) reducing or eliminating the impact over time; and (5) compensating for impacts. The FWS supports and adopts this definition and considers the specific elements to represent the desirable sequence of steps in the mitigation planning process. The FWS strives to help achieve the goal of no net loss of wetland habitats.

Appendix 2

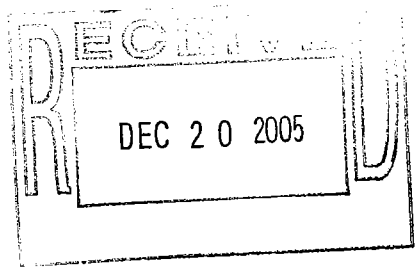
Additional information concerning Grasslands Ecological Area (Grasslands)

The Grasslands is a critical area for Pacific Flyway waterfowl populations, providing wintering habitat for 20 percent of the total population. Waterfowl populations wintering in the Grasslands average a half-million, with peak waterfowl numbers at one million. Several federally listed or proposed threatened and endangered species are known to occur either seasonally or year-round. As one of the largest remaining vernal pool complexes, Grasslands is home to many rare species associated with this disappearing habitat. San Joaquin kit fox (*Vulpes macrotis mutica*), Aleutian Canada geese (*Branta canadensis leucopareia*), Swainson's hawks (*Buteo swainsoni*), and tri-colored blackbirds (*Agelaius tricolor*) are also dependent upon the area. Less than five percent of the original four million acres of Central Valley wetlands remain. In recognition of the rich and critically important natural resources of the Grasslands, the conservation agencies have focused more attention and funding on this area than most areas of the State. There is a significant level of investment in maintaining the area's natural heritage, including two FWS national wildlife areas encompassing approximately 35,000 acres, a FWS conservation easement program that encompasses 70,000 acres on 170 separate private properties, six units of the California Department of Fish and Game wildlife areas encompassing approximately 25,000 acres, a California Department of Parks and Recreation state park, and an extremely active Natural Resources Conservation Service program. This area has garnered numerous habitat restoration and enhancement grants totaling millions of dollars, and is one of the most active areas statewide for conservation group involvement.

STATE AGENCY

SCOPING COMMENTS

December 14, 2005



Mehdi Morshed, Executive Director
California High-Speed Rail Authority
925 L Street, Suite 1425
Sacramento CA, 95814

Mr. David Valenstein, Environmental Program Manager
Office of Passenger Programs
Federal Railroad Administration
U.S. Department of Transportation
1120 Vermont Avenue, Mail Stop 20
Washington, D.C. 20590

Re: Notice of Preparation and Notice of Intent of the Program EIR/EIS for the Bay Area to Central Valley High-Speed Train

Dear Messrs. Morshed and Valenstein:

The California Department of Parks and Recreation (California State Parks) welcomes the opportunity to provide comment on the Notice of Preparation (NOP) and Notice of Intent (NOI) for a Second Tier Program Environmental Impact Report / Environmental Impact Statement (Program EIR/EIS) on California's High-Speed Train System.

California State Parks is a State Agency as defined by the California Environmental Quality Act (CEQA) § 21082.1, a Responsible Agency (PRC § 21069) and a Trustee Agency as used by CEQA, its Guidelines, and as defined by CCR § 15386 for the resources affected by this project within units of the State Park System. Our mission is to provide for the health, inspiration, and education of the people of California by helping preserve the state's extraordinary biodiversity, protecting its most valued natural and cultural resources, and creating opportunities for high quality outdoor recreation. The 1.4 million-acre California State Park System, for which we are responsible, is currently made up of 278 classified units and several major unclassified properties.

California State Parks is concerned that a High-Speed Train (HST) mountain crossing between the Bay Area and Central Valley will result in irreversible damage to the natural, cultural, and scenic resources of the State Park System. We strongly urge the High Speed Rail Authority (Authority) and the Federal Railroad Administration (FRA) to address impacts to landscape-level features, as well as to specific sensitive and special-status resources, in the Second Tier Program EIR/EIS. Adequate analyses will enable selection of a preferred alignment that avoids or minimizes impacts associated with these resource values. Features that typify the landscape-level scale may include important

recreation areas and viewsheds, regional recreation trail corridors, key watersheds, wildlife habitats and corridors, cultural landscapes and sacred sites, and significant geological features and paleontological resources. Even though it is a planning-level document, the Second Tier Program EIR/EIS should adequately analyze potential impacts of the HST mountain crossing to these, and all other resources, so an alignment that would irreversibly degrade or destroy resources is not further considered in the planning process.

According to the map and written project description in the NOP, we have determined that at least ten State Park System units (SPS units) have the potential to be affected by a new rail alignment, including Henry W. Coe State Park. The "possible alignment area" identified on the map is represented by a shaded area that we estimate to be over 3,600 square miles in size. The only park unit mapped and labeled within or in close proximity to this area is Henry W. Coe State Park. In reality, the "possible alignment area" spans a region of relatively concentrated park lands and open space managed by a variety of government, non-profit, and private entities. The ten SPS units that appear to occur within or immediately adjacent to the study area include:

- State Parks - Caswell Memorial, Great Valley Grasslands, Henry W. Coe, and Pacheco;
- State Recreation Areas - George J. Hatfield, Lake Del Valle, McConnell, and San Luis Reservoir;
- State Vehicular Recreation Area – Carnegie;
- Other Park Projects - Martial Cottle Ranch.

While the Authority and the FRA have pledged to avoid Henry W. Coe State Park, it is possible that the rail alignment will ultimately run close enough to it and other SPS units to cause significant impacts, some of which will be unavoidable. For example, we believe that the alignment coming within 900 feet of McConnell and San Luis Reservoir State Recreation Areas will incur significant, unavoidable impacts to the recreation and resource values of the two units. Potential impacts of particular concern for these and the other units include, but are not limited to, the following planning processes and resource values. Please consider these issues during your planning efforts and in preparation of the Second Tier Program EIR/EIS.

<u>SPS Unit Classifications, General Plans, and Additional Planning Efforts</u>:

SPS units are operated according to their classification (PCR § 5019.50 through 5019.74) and individual general planning documents (PCR § 5002.2).

The classification statutes set forth the primary purpose of each classified unit, identify in general what types of facilities and uses may be permitted, and provide direction on how unit resources shall be managed. A general plan is a formal land-use planning document that provides broad policy and programmatic guidance regarding the development and management of an individual classified unit of the State Park System, including its natural, archaeological, historic, scenic, aesthetic, and recreation values. The guidance from each general plan is essential to California State Parks' managers and staff, and is of value to those organizations and individuals who have a substantial interest in the State Park System and its individual units. We request that direct, indirect, and cumulative impacts to long-range planning, management, and development of our units be considered. The Second Tier Program EIR/EIS should also explain any conflicts and proposed resolutions to impacts related to California State Parks planning documents, such as general plans.

Another component of planning is the ongoing effort to acquire new properties to add to existing units and to establish entirely new park units. New properties have the potential of being impacted by proposed actions if not considered during the time that the Program EIR/EIS is being prepared. Thus, we urge the Authority and FRA to consult with us throughout environmental review for the Program EIR/EIS and future project development processes regarding our ongoing planning and acquisition efforts. One such current and ongoing effort is the Central Valley Vision, an effort to guide future State Park System acquisition and development projects in one region under-represented by California State Parks. More information on the Central Valley Vision and other planning efforts are located at http://www.parks.ca.gov/planning.

Recreation:

We request that separate topics related to the multifaceted aspects of recreation be brought together into a single chapter in the Second Tier Program EIR/EIS. The recreation value of the State Park System is inclusive of, but not limited to, resource issues and park land loss covered in the Department of Transportation Act Section 4(f) and Land and Water Conservation Fund Act Section 6(f).

Recreation use and enjoyment throughout the State Park System overlap many other park resource values and thus are often inseparable from them. For example, natural resources, cultural features, and noise level and visual stimuli consistent with the park setting enhance, and are valued as part of, the recreation experience. Also, a linear rail alignment that transects the landscape

on a regional scale may parallel or transect recreational trail corridors, like the Bay Area Ridge and San Francisco Bay Trails, which link public lands and open space under multiple jurisdictions. In such cases, noise, vibration, and visual impacts to the natural landscape are of chief concern. Impacts to these resources would lead to a degraded recreation experience for park visitors. A diminished experience most likely will cause a drop-off in visitorship, a subsequent decrease in regional park land value, and a decline in recreation-generated revenues for equipment, fees, and services.

A comprehensive recreation section in the Program EIR/EIS should contain information not currently included with the standard 4(f) and 6(f) analyses, such as direct impacts of the project by nature of its physical proximity to SPS units, indirect impacts that alter existing recreation conditions at the units, socio-economic impacts, and cumulative impacts in relation to other projects. As with our recommendations during the First Tier Program EIR/EIS process, we refer the Authority and FRA to another of our planning resources, the California Outdoor Recreation Plan 2002, and a regional and statewide trails reference, the California Recreational Trails Plan (Phase I), for further information.

Visual and Aesthetic Resources

Based on analysis and development of alternative rail alignments for the Second Tier Program EIR/EIS, it is reasonable to expect that the Authority and FRA will be able to anticipate which alignments will be within the line of sight of any SPS units. California State Parks may be able to provide additional information about vantage points and viewing areas from locations within parks for analysis of potential visual impacts and mitigation measures.

Any alternative alignment designed to pass near SPS units or other designated conservation lands will cause noise and vibration impacts from construction, HST operation, and facility operations and maintenance. In regard to HST operation, speeds will most likely range from 150 to 220 miles per hour through "less constrained" open areas as described in the First Tier Program EIR/EIS. Consequently, HST will be loudest in undeveloped areas where the ten SPS units described previously, and other conservation lands, tend to occur. Increased speeds will cause high noise transference over open spaces, especially on elevated structures where sound may spread twice as far (First Tier Program EIR/EIS, page 3.4-10). Therefore, noise levels introduced by the proposed project will disrupt the natural, historical, and wilderness settings that characterize the ten SPS units. Whether noise levels are above recommended

Environmental Protection Agency (EPA) and FRA standards is irrelevant in regard to the recreation experience; any introduced, unnatural noise will detract from the sense of place of nearby units, whether it be the outstanding natural and cultural environment, the tranquility and isolation of the State Wilderness experience, or earlier eras preserved at cultural sites and historic units. As a result of increased noise, the visitor recreation experience will be diminished.

As stated previously, the "possible alignment area" on the NOP map spans a region of relatively concentrated SPS units and other conservation lands. Any proposed alignment in the general vicinity of these jurisdictions should be rated high for noise and vibration impacts because of the realistic probability that HST noise will intrude upon existing ambient noise levels. Furthermore, screening distances should be significantly more than 900 feet, especially for park lands in rural and natural settings, and be adequately defined for SPS units and conservation lands once the alternative alignments are determined.

Proposed mitigation should include pre- and post-project monitoring of noise and vibration levels. Also, while constructed noise barriers and tunnels may provide some relief from HST noise, they will have impacts in their own right that will require mitigation.

Natural Resources:

California State Parks manages each SPS unit to protect the natural and sustainable function of ecosystems, as well as special-status resources. Construction, operation, and ongoing management activities associated with the HST mountain crossing are likely to impact natural resources, such as biological, geological and soil, paleontological, hydrologic, and water and air quality values. Impacts of such large scale actions realistically would encompass landscape-level resources like watersheds and wildlife corridors. Thus, impacted areas may include multiple SPS units, even if the units are not transected or immediately adjacent to a proposed rail corridor. Consequently, it is critical for the Second Tier Program EIR/EIS to develop alternatives that avoid direct and indirect impacts to SPS units and other critical publicly and privately protected conservation lands in order to avoid habitat fragmentation and degradation. Following are impacts and concerns that may arise.

- Loss of habitat along the preferred alignment, construction staging areas, and associated permanent maintenance and operation facilities, public stations, and other necessary infrastructure;

- The general impacts and scale of construction, tunneling, access roads, and other earthmoving activities as these relate to disruption of vegetative cover, introduction of exotic and invasive plant species, compacted soils, erosion, sedimentation of waterways, hazardous materials, and the long-term effects of such disturbance;
- Transection of riparian areas and wetlands and related impacts to wildlife, including but not limited to sensitive and special-status species;
- Disruption of regional wildlife movement by linear corridors with the physical nature of the infrastructure presenting a barrier to wildlife;
- The impact of noise and vibration of construction activities and ongoing HST movement on small mammals, ground nesting birds (i.e., flushing and predation) and other wildlife activity, foraging, movement, and migration;
- Increased air and dust pollution from rail construction activities and from air pollution generated at some power plants for the electricity needed to run the HST system;
- The impact of light pollution, such as night lighting for construction activities and lighting of permanent infrastructure and facilities;
- Impacts of electromagnetic fields (EMF) on wildlife movement and migration;
- Collision by and electrocution of avian species with electrical wires, regularly spaced 26-foot catenary poles, new transmission lines, and transformers;
- Impacts to unique and aesthetically beautiful geological formations, as well as those of scientific interest, energy value, and related to hazardous geological areas, unstable soils, and fault areas;
- Impacts to paleontological resources, which are as a rule rare even in areas of local, high density.

Habitat degradation and wildlife corridor fragmentation between SPS units and other open space lands, such as The Nature Conservancy's Mount Hamilton Project conservation lands, are two of our highest concerns. Biological resources known to occur within SPS units may include sensitive and special-status species and their habitats, wetlands, unique plant assemblages, and wildlife corridors that are not constrained by unit boundaries. The First Tier Program EIR/EIS states that the preferred north-south alignment is more of a barrier to wildlife than traditional transportation corridors. We also believe this will be the case for the HST mountain crossing because the double-tracked, entirely fenced/walled, and grade-separated right-of-way will typically be 100 feet

wide, equivalent in size to a securely fenced six-lane highway. It is highly likely that SPS units known for their natural resource values and that are within the "possible alignment area" will be significantly impacted. Wildlife corridors and habitat linkages occur on a landscape-level and should be analyzed at the program-level to avoid impacts of a preferred alignment. An assessment of rail alternatives should document and update information about intact wildlife corridors and core habitat in more detail than the general planning-level *Missing Linkages* document (California Wilderness Coalition, 2000) referenced in the First Tier Program EIR/EIS. More detailed landscape-level analysis is necessary now because analysis deferred until project-level work will artificially fragment intact functional ecosystems for small-scale study. Other readily available scientific and environmental documents are available and should be used for landscape-level analysis. To determine impacts to intact ecosystems, the total sum of core habitat and wildlife corridor area acreage intersected by the alternative alignments should be quantified and included in Second Tier Program EIR/EIS impact and mitigation analyses. This effort will provide a realistic depiction of habitat fragmentation impacts from alternative alignment compared to the No Project alternative. Additionally, please include a discussion of mitigation strategies with pre- and post-project monitoring methods of corridor and associated core habitat use.

Cultural Resources:

Construction activities for the HST mountain crossing will likely result in infrastructure consolidation, new facility and local transmission line development, and a new need for operations and maintenance along the linear transportation corridor. These activities have the potential to disturb, degrade, or damage archaeological sites, buried archaeological remains, historic structures or features, cultural landscapes, and sacred sites of significance to California State Parks and to the history of the State of California. In addition, ongoing train vibration has the potential to impact cultural resources, such as historic structures. We urge protection of archaeological and historical resources within, adjacent to, and in the vicinity of SPS units that may be pertinent to interpretation of cultural resource values. Protections, such as avoidance and minimization measures, identification, and interpretation should be addressed in the Second Tier Program EIR/EIS. Along with the need for research and surveys prior to site-specific studies, we request that any new facilities be designed and constructed to avoid archaeological remains to the greatest extent practicable. If unavoidable, an appropriate recovery plan should be considered and if remains are found during construction, work should be stopped for recordation, determinations, and development of a protection plan. In addition, all historical

resources should be mapped, recorded, and evaluated to determine eligibility for placement on the National Register of Historic Places. The project ultimately should be designed to avoid significant impacts to potentially eligible historic resources.

In summary, California State Parks encourages the Authority and FRA to avoid direct, indirect, and cumulative impacts to units of the California State Park System with careful planning during the Second Tier Program EIR/EIS process. Detailed studies and analyses will also be necessary for any site-specific environmental documents prepared in relation to the Program EIR/EIS. With that said, it is important that the Authority and FRA make particular efforts to consult with this Department throughout future environmental review and project development processes.

As this proposed project proceeds through the environmental review process, we anticipate that we will be able to define issues in more detail and possibly bring others to your attention. If any of our current comments need clarification or further explanation please do not hesitate to contact me at (916) 653-6725 or rrayb@parks.ca.gov.

Sincerely,

Richard Rayburn
Chief
Natural Resources Division

cc: Resources Agency
Mathew Fuzie, District Superintendent V, Monterey District
Donald Monahan, District Superintendent V, Diablo Vista District
Scott Wassmund, District Superintendent V, Central Valley District
Rick LeFlore, Superintendent IV, Off-Highway Motor Vehicle Recreation Division
Kathryn Tobias, Staff Counsel III, Legal Affairs Office

STATE OF CALIFORNIA – THE RESOURCES AGENCY

ARNOLD SCHWARZENEGGER, *Governor*

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 942360001
(916) 653-5791

DEC 0 2 2005

Dan Leavitt
California High Speed Rail Authority
925 L Street, Suite 1425
Sacramento, California 95814

Bay Area to Central Valley High-Speed Train
State Clearinghouse (SCH) Number: 2005112051

Staff for The Department of Water Resources has reviewed the subject document and provides the following comments:

Portions of the proposed project may be located within a regulated stream over which The Reclamation Board has jurisdiction and exercises authority. If the project includes any "channel reconfiguration" that was not previously permitted, new plans must be submitted. Section 8710 of the California Water Code requires that a Board permit must be obtained prior to start of any work, including excavation and construction activities, within floodways, levees, and 10 feet landward of the landside levee toes. A list of streams regulated by the Board is contained in the California Code of Regulations, Title 23, Section 112.

Section 8(b)(2) of the Regulations states that applications for permits submitted to the Board must include a completed environmental questionnaire that accompanies the application and a copy of any environmental documents if they are prepared for the project. For any foreseeable significant environmental impacts, mitigation for such impacts shall be proposed. Applications are reviewed for compliance with the California Environmental Quality Act.

Section 8(b)(4) of the Regulations states that additional information, such as geotechnical exploration, soil testing, hydraulic or sediment transport studies, biological surveys, environmental surveys and other analyses may be required at any time prior to Board action on the application.

You may disregard this notice if your project is outside of the Board jurisdiction. For further information, please contact Sam Brandon of my staff at (916) 574-0651.

Sincerely,

Mike Mirmazaheri, Chief
Floodway Protection Section

RECEIVED
DEC - 5 2005

cc: Governor's Office of Planning and Research
State Clearinghouse
1400 Tenth Street, Room 121
Sacramento, CA 95814

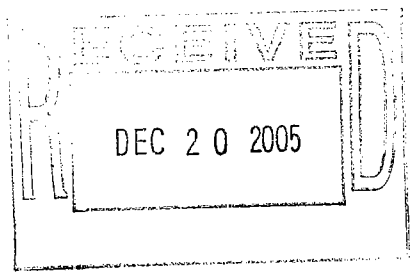
State Water Resources Control Board

Division of Water Quality
1001 I Street • Sacramento, California 95814 • (916) 341-5455
Mailing Address: P.O. Box 100 • Sacramento, California • 95812-0100
FAX (916) 341-5463 • Internet Address: http://www.waterboards.ca.gov

Alan C. Lloyd, Ph.D.
Agency Secretary

Arnold Schwarzenegger
Governor

DEC 13 2005



Mehdi Morshed
Executive Director
California High-Speed Rail Authority
925 L Street, Suite 1425
Sacramento, California 95814

Dear Mr. Morshed:

NOTICE OF PREPERATION OF A PROGRAM ENVIRONMENTAL IMPACT REPORT/ ENVIRONMENTAL IMPACT STATEMENT (PROGRAM EIR/EIS) FOR A BAY AREA TO CENTRAL VALLEY HIGH-SPEED TRAIN

Thank you for the opportunity to comment on the California High-Speed Rail Authority's November 2005, Notice of Preparation (NOP) of a Program Environmental Impact Report/ Environmental Impact Statement (Program EIR/EIS) for a Bay Area to Central Valley High-Speed Train (HST). The EIR/EIS will define and evaluate alternative corridors and station locations. The proposed HST system would provide high-speed intercity travel that would link major metropolitan areas of the state; interface with international airports, mass transit, and highways; and provide added capacity to meet increases in intercity travel demand.

Our comments are submitted in compliance with CEQA *Guidelines* §15096, which requires that responsible agencies specify the scope and content of the environmental information germane to their statutory responsibilities, and that lead agencies include that information in their Environmental Impact Report (EIR) for the project. The State Water Resources Control Board (State Water Board) and the Regional Water Quality Control Boards (Regional Water Boards) regulate discharges which could affect the quality of water of the state in order to protect the chemical, physical, biological, bacteriological, radiological, and other properties and characteristics of water which affects its use.[1] Activities associated with the project may require the following water board permits:

- Discharge of fill material - Clean Water Act (CWA) §401 water quality certification for discharges federal waters (and associated US Army Corps of Engineers §404 permit); and/or Waste Discharge Requirements for discharges to non-federal waters,
- Land disturbance - CWA §402(p) storm water permit,
- Wastewater discharge - CWA §402 NPDES permit

[1] Water Code section 13050(g)

- Other - permits may be needed for dewatering discharges and other project activities.

According to the NOP, the California High-Speed Rail Authority has "selected a broad corridor between the Bay Area and the Central Valley containing a number of feasible route options and proposed further study to make programmatic selections of alignments and stations." The corridor is bounded by the Pancheco Pass (SR-152) to the south, the Altamont Pass (I-580) to the north, the BNSF Corridor to the east, and the Caltrain Corridor to the west. Alignment and station options will not be pursued through Henry Coe State Park nor at Los Banos.

Because the project may affect waters within the jurisdiction of the Central Valley and San Francisco Bay Regional Boards, the SWRCB will take the lead regulatory role for CWA §401 water quality certification, in consultation with the affected Regional Boards. Our present comments focus primarily on discharges regulated under our CWA §401 and storm water programs. This body of this letter presents general advice regarding the scope and content of environmental information germane to the statutory responsibilities of the water boards.

More technical comments are included in Enclosure 1: *Identification of Potential Water Quality Impacts and Required Analyses (Impacts Identification)*, which lists the potential effects of development on water quality and related information needs. Effective analysis requires consideration of the interactions of these effects, and these are displayed in a flowchart in the *Impacts Identification.*

Scope and Level of Needed Analyses. We are unclear regarding the levels of analysis which will be presented in the Programmatic EIR and subsequent EIRs respectivly. Our present comments generally indicate the environmental information which we will need in order to consider issuance of permits.

Transportation projects can degrade water quality through a complex of interrelated causes and effects, which unmanaged, ultimately destroy the physical, chemical, and biological integrity of the watersheds in which they occur. The primary adverse impacts of poorly planned transportation projects on water quality are:

- the direct physical impacts to aquatic, wetland, and riparian habitat and other beneficial uses;
- generation of construction-related and post-construction pollutants;
- disruption of watershed level aquatic functions, including pollutant removal, floodwater retention, and habitat connectivity.

The number and variability of the pathways through which water quality degradation can occur complicates analysis, but understanding how these pathways operate within the specific circumstances of the selected project alternative is essential to effectively mitigating the adverse effects. Fortunately, avoidance or minimization of any causal link will obviate or reduce

subsequent effects and needed analyses, and a relatively small number of key variables mediate most of the pathways causing water quality degradation.

To fulfill their statutory responsibilities, the State Board and Regional Boards will need to understand how the project alternatives will avoid or minimize each potential cause of water quality degradation, what effects will remain unmitigated through project design, and the magnitude of the remaining adverse effects. Quantification should be as definitive as possible, using appropriate modeling and adequate data. Modeling approaches should be documented and data deficiencies or other factors affecting the reliability of the results identified and characterized.

Identification of Affected Waters. Please characterize and map all waters potentially affected by each alternative project configuration and list them in tabular format, organized by waterbody type (lake, streambed, riparian, wetland, ocean), sub-basin, Regional Water Board jurisdiction, and sub-basin. Include riparian areas as defined by the National Academy of Sciences[2]. For each waterbody potentially directly affected, identify the acreage and (for drainage features) the number of linear feet directly impacted. Sum the total affected acres and linear feet by waterbody type within each Regional Water Board jurisdiction, and as a project total. Identify any waters not subject to federal jurisdiction, and the reason non-jurisdictional (e.g., whether, "isolated", or above line of ordinary high water). Identify the level of precision with which these data are presented in the Programmatic EIR. Identify how any unavoidable losses will be mitigated.

Fill Discharges. Fill discharges have the potential to increase turbidity and to introduce other pollutants (e.g. heavy metals, petrochemicals, pesticides), into waterbodies. Please describe the measures that will be taken to ensure foreign constituents in fill material will not degrade water quality.

Decreased Pollutant Removal and Floodwater Retention. The project alternatives could fill or hydrologically isolate wetlands, riparian areas, or headwater streams, eliminating their natural pollutant removal and floodwater retention functions. Please characterize such loss of these functions and quantify the direct and indirect impacts within the affected basin (e.g., loss of floodwater retention may result in increased peak flows, channel erosion, loss of riparian habitat, increased water temperature, etc). Please describe how the loss will be mitigated.

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[2] Riparian areas are transitional between terrestrial and aquatic ecosystems and are distinguished by gradients in biophysical conditions, ecological process, and biota. They are areas through which surface and subsurface hydrology connect water bodies with their adjacent uplands. They include those portions of terrestrial ecosystems that significantly influence exchanges of energy and matter with aquatic ecosystems (i.e., a zone of influence). Riparian areas are adjacent to perennial, intermittent, and ephemeral streams, lakes, and estuarine-marine shorelines. (National Research Bureau of the National Academy of Sciences. 2002. *Riparian Areas: Functions and Strategies for Management.* National Academy Press, 2102 Constitution Avenue, N. W., Washington, D. C., 20418).

Alternatives Analysis. Please include the alternative analysis required by the CWA §404(b)(1) *Guidelines* (specified in 40 CFR 230) as part of the alternative analysis in the EIS/EIR. Most construction-related direct impacts to surface waters will likely require CWA §404 permits from the U.S. Army Corps of Engineers (USACE), and will therefore need to conduct an alternatives analysis consistent with the requirements of the federal CWA §404(b)(1) *Guidelines.* The principals of avoidance which the *Guidelines* articulate are directly relevant to the State and Regional Water Boards' mandate to protect water quality. Compensatory mitigation should be considered only for unavoidable permanent and temporary impacts to waters.

Habitat Connectivity. Transportation alignments by their nature have great potential to fragment large areas of habitat. Riparian corridors and other waters within the regulatory purview of the State Board and Regional Boards can play important roles in maintaining habitat connectivity. Enclosure 2, *Terrestrial Habitat Connectivity Related To Wetland, Riparian and Other Aquatic Resources*, provides information and references on this subject. Aquatic habitat itself may also be fragmented by impacts to streams or other waterbodies.

Please analyze (1) the regional importance of wildlife movement corridors in and along waterbodies impacted by the alternative alignments, (2) the potential for disrupting such corridors, and (3) the potential for enhancing such corridors to provide project mitigation. Include information regarding any sensitive plant and animal species that likely utilize the corridors. Please identify any project impacts to riparian or other waters that could compromise future remediation of existing connectivity barriers. To further inform these analyses, please consider the information and literature referenced in Enclosure 2, including recent data on the role of riparian corridors as movement corridors in California[3]. Please consider the maximum use of existing alignments to maintain existing habitat value and connectivity.

Hydrologic Disruption as a Driving Variable. Because increased runoff from developed areas is the key variable driving a number of other adverse effects (as discussed and displayed in Enclosure 1, *Impacts Identification*), attention to maintaining the pre-project hydrograph will prevent or minimize other problems and will limit the need for other analyses and mitigation to be included in the EIR.

Please include measures to maintain the pre-project hydrograph in the alternatives analyses in the EIR. Please also document potential cumulative impacts to watershed hydrology from existing and any other planned development in the area.

Again, thank you for this opportunity to comment. If we can clarify our comments or provide other assistance, please contact Donielle Jackson, at 916-341-5467 or at

[3] E.g., Hilty, J. A. and Merenlender, A. M. Use of Riparian Corridors and Vineyards by Mammalian Predators in Northern California. *Conservation Biology* 18(1) 126-135: February 2004.

dljackson@waterboards.ca.gov. You may also contact Oscar Balaguer, Chief, Water Quality Certification and Wetlands Unit at 916-341-5485 or at obalaguer@waterboards.ca.gov.

Sincerely,

James B. Maughan, Chief
Regulatory Section

Enclosures (2)

cc: Mr. Rob Floerke, Regional Manager
Central Coast Region (Region 3)
Department of Fish and Game
7329 Silverado Trail
Napa, CA 94558

Ms. Sandy Morey, Regional Manager
Sacramento Valley-Central Sierra Region (Region 2)
Department of Fish and Game
1701 Nimbus Road
Rancho Cordova, CA 95670

Ms. Jane Hicks, Acting Chief
Regulatory Section
San Francisco District
U.S. Army Corps of Engineers
333 Market Street
San Francisco, Ca 94105-2197

Mr. Andrew Rosenau
Regulatory Section
Sacramento District
U.S. Army Corps of Engineers
1325 J Street
Sacramento, CA 95814

Mr. Tim Vendlinski, Chief (WTR-8)
Wetlands Regulatory Office
U.S. Environmental Protection Agency, Region 9
75 Hawthorne Street

San Francisco, CA 94105

Regional Water Board Executive Officers
Sacramento and San Francisco Bay Regions

Enclosure 1

State Water Resources Control Board

High-Speed Rail: Identification of Potential Water Quality Impacts and Required Analyses

Comments on Draft EIS/EIR For High-Speed Rail

December 2005

Urban Development:
Potential Water Quality Impacts and Required Analyses

The degraded character of urban streams does not result from any single factor, but rather from the interaction of a variety of detrimental effects.

Klein, 1979

Urban development degrades water quality through a complex of interrelated causes and effects, which, unmanaged, ultimately destroy the physical, chemical, and biological integrity of the watersheds in which they occur. The primary adverse impacts of poorly planned development projects on water quality are:

- the direct impacts to aquatic, wetland, and riparian habitat and other beneficial uses;
- generation of construction-related and post-construction pollutants;
- alteration of flow regimes and groundwater recharge as a result of impervious surfaces and storm drain collection systems;
- disruption of watershed level aquatic functions, including pollutant removal, floodwater retention, and habitat connectivity.

These factors have historically resulted in a cycle of destabilized stream channels, poor water quality, fragmented aquatic and terrestrial habitat, and engineered solutions to disrupted flow patterns, culminating in loss of natural functions and societal values in the affected basins.

The number and variability of the pathways through which water quality degradation can occur complicates analysis, but understanding how these pathways operate within the specific context of each project is essential to effectively mitigating the adverse effects. Fortunately, avoidance or minimization of any causal link will obviate or reduce subsequent effects and needed analyses, and a relatively small number of key variables mediate most of the pathways causing water quality degradation.

This Enclosure consists of a flowchart diagram (Figure 1) displaying the factors potentially affecting water quality, and a table (Table 1) characterizing them.

Figure 1 begins on the left with three activities that are associated with urbanization: filling, construction (construction and post-construction phases), and channelization. Figure 1 ends on the right with the resulting impaired beneficial uses and the potential for increased maintenance and property damage. In between are intermediate processes. Arrows show cause-and-effect relationships, which include synergistic and cumulative effects.

Table 1 briefly describes the causes and effects displayed in Figure 1, provide literature citations for each of the effects, and identifies for each effect the types of project-specific information needed to assess and mitigate each adverse impact to water quality.

POTENTIAL EFFECTS OF URBAN DEVELOPMENT ON BENEFICIAL USES

This diagram shows how urban development can can affect beneficial uses of water.

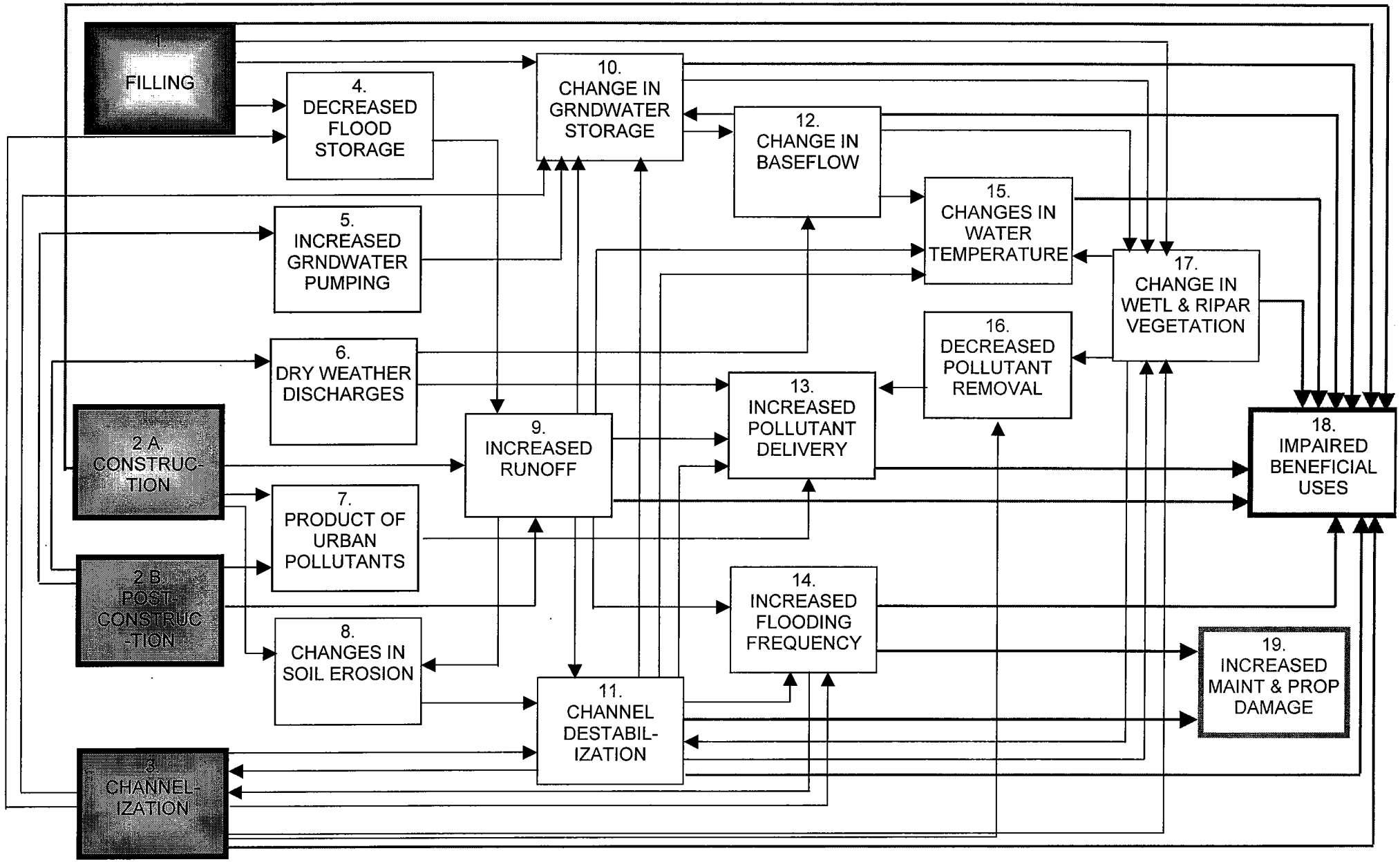

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Figure 1

TABLE 1

High-Speed Rail: Identification of Potential Water Quality Impacts and Required Analyses

CAUSE	EFFECT	NEEDED ANALYSES
1. FILL & EXCAVATION Fill or excavation in wetlands, riparian areas, or other waters of the state.	**A. Decreased Flood Storage.** Fill can impinge on the natural storage volume of ephemeral, intermittent, and perennial channels, backwaters, and wetlands, reducing capacity to retain runoff.[1]	1) Quantify reduced flood storage in each affected basin. 2) Identify mitigation.
	B. Change in Groundwater Storage. Fill and excavation can decrease groundwater recharge and cause lower water tables by changing soil percolation characteristics and reducing the area of standing water in recharge basins.[2] Linear excavation (e.g., for utility lines) can act as a conduit to drain groundwater and locally lower watertables.	1) Quantify groundwater response to changes in percolation. 2) Identify locations where linear alignments could act to dewater shallow aquifers. 3) Identify mitigation.
	C. Change in Wetland and Riparian Vegetation. Fill and excavation can bury or remove vegetation and can change site features to prevent reestablishment of characteristic species.	1) Identify and map types and areal extents of affected vegetation. 2) Identify mitigation.
	D. Impaired Beneficial Uses. Fill can directly impair beneficial uses by reducing water area and changing hydrology, geomorphology, substrate, and other waterbody characteristics. In addition, projects which fragment habitat and reduce wildlife movement along riparian and other corridors can degrade remaining patches of wetlands and other habitat by changing their physical characteristics and by isolating and exposing small populations of plants and animals, resulting in local or regional extinctions.[3]	1) Document types, areal extents, and (for drainage features) lengths of affected waters. 2) Characterize and map at project-area and regional scales existing wildlands, along with riparian corridors and other water features supporting habitat connectivity. 3) Identify effects of fill on terrestrial and aquatic habitat connectivity (refer to Enclosure 3). 4) Identify watershed-level effects on pollutant removal and flood retention. 5) Identify mitigation.
2A. CONSTRUCTION Clearing, grading, and construction of structures and facilities.	**A. Production of Urban Pollutants.** Construction can produce pollutants through improper use and disposal of toxic construction materials.	1) Identify mitigation for inclusion in stormwater pollution prevention plan.
	B. Change in Soil Erosion. Active construction can dramatically increase soil erosion by exposing and destabilizing soils. Erosion is compounded by the increased runoff typically accompanying construction.[6]	1) Identify location and extent of planned grading. Display proximity and slope relationships to receiving drainages. 2) Document erodibility of soils and subsoils in areas proposed for grading. 3) Quantify amount and duration of increased sediment loadings to each affected drainage. 4) Identify mitigation.

CAUSE	EFFECT	NEEDED ANALYSES
	C. Increased Runoff. Construction can increase both the total and peak volume of stormwater runoff by removing vegetation, compacting soil, exposing dense subsoil, creating steep graded slopes, and eliminating terrain depressions and ephemeral and intermittent drainages that would naturally slow the movement of stormwater.[9]	1) Quantify total and peak volumes of increased runoff for each affected drainage 2) Identify mitigation.
	D. Impaired Beneficial Uses. Projects which fragment habitat and reduce wildlife movement along riparian and other corridors can degrade remaining patches of wetlands and other habitat by changing their physical characteristics and by isolating and exposing small populations of plants and animals, resulting in local or regional extinctions.[11]	1) Characterize and map at project-area and regional scales existing wildlands, along with riparian corridors and other water features supporting habitat connectivity. 2) Identify effects of construction on terrestrial and aquatic habitat connectivity (refer to Enclosure 3). 3) Identify mitigation.
2B. POST-CONSTRUCTION Ongoing effects of constructed environment.	**A. Dry weather discharge.** Construction can cause dry-season "nuisance" runoff from activities such as landscape irrigation[5], sidewalk and vehicle washing, and basement dewatering.	1) Characterize volumes, seasonality, and other pertinent characteristics of "nuisance" flows for each affected drainage.
	B. Increased Groundwater Pumping. Construction can cause increased groundwater pumping for domestic or landscape use.[4]	1) Quantify and map locations of increased pumping.
	C. Production of Urban Pollutants. After construction, urban areas can generate pesticides, nutrients, oxygen-demanding substances, heavy metals, petroleum hydrocarbons, bacteria, viruses, and other pollutants from activities such as landscape care and vehicle operation and maintenance.[7]	1) Quantify projected increase in pollution production in each affected basin. 2) Identify mitigation.
	D. Change in Soil Erosion. After construction, erosion can be reduced to below natural levels because soils are covered with buildings and pavement, and runoff is routed through storm drains.[8]	1) Quantify reduction of natural sediment delivery rates to each affected basin. 2) Identify mitigation.

CAUSE	EFFECT	NEEDED ANALYSES
	E. Increased Runoff. After construction, maintained landscapes and impervious surfaces such as roofs and streets increase total and peak runoff. The increased flows move quickly over paved surfaces and are collected, concentrated, and further accelerated in stormdrain systems. The combination of increased flows and more efficient transport causes a higher, "flashy", more rapidly peaking and falling hydrograph, especially for smaller, more frequent floods.[10]	1) Quantify project-induced changes in total and peak runoff rates to each affected drainage. 2) Identify mitigation.
3. CHANNELIZATION Engineered changes in channel structure or morphology to stabilize banks, prevent flooding, or increase flow conveyance.	**A. Decreased Flood Storage.** Channelization can reduce flood storage within a basin by restricting flows to the active channel, thereby preventing detention of floodwater in backwaters and on the adjacent floodplain.[12]	1) Quantify and map reductions in flood storage in each affected basin. 2) Identify mitigation.
	B. Change in Groundwater Storage. Lining channel bottoms can change groundwater storage by reducing percolation and groundwater recharge.[13] Deepening natural channels can drain adjacent shallow water tables.[14]	1) Quantify and map locations of reduction in recharge rates. 2) Quantify effects on channelization on shallow water tables and associated wetlands. 3) Identify mitigation.
	C. Channel Destabilization. Channelization can cause channel destabilization by changing the balance between the stream's flow, sediment load, and channel form. Destabilization tends to affect entire stream systems. For example, channelization can concentrate and synchronize peak flows from tributary streams, causing increased channel erosion both above and below the channelized reach. The eroded sediment is then deposited downstream when the flow slows down, where it may initiate further destabilization.[15]	1) Quantify basin-level hydrologic and fluvial geomorphic effects of channelization in each affected drainage. 2) Identify mitigation.
	D. Increased Flooding Frequency. Constricted channels (e.g., in leveed sections) can cause water to back up, resulting in localized upstream flooding. Rapid passage of floodwaters through "improved" channels can increase flooding downstream by concentrating and synchronizing tributary peaks.[16]	1) Quantify basin-level hydrologic effect of channelization on each affected basin, including changes in flood return frequencies. 2) Identify mitigation.
	E. Decreased Pollutant Removal. Channelization can decrease natural pollutant removal by reducing instream structural complexity and turbulent-flow aeration, increasing flow velocity, reducing overbank flow, and by causing change in vegetation.[17]	1) Map waters lost to channelization in each affected drainage and characterize type, areal extent, and pollutant removal value. 2) Quantify affect on pollutant loadings to each affected waterbody and downstream receiving waters. 3) Identify mitigation.
	F. Change in Wetland and Riparian Vegetation. Channelization and associated maintenance can directly destroy wetland and riparian vegetation and can change site features to prevent reestablishment of characteristic species.[18]	1) Map and Identify types and areas of affected vegetation. 2) Identify mitigation.

CAUSE	EFFECT	NEEDED ANALYSES
	G. Impaired Beneficial Uses. Channelization and associated maintenance can directly impair beneficial uses by reducing waterbody area; increasing stream velocity; disrupting riffle and pool sequences, cover, and other structural features; changing substrate; cutting off nutrient inputs to and from backwaters and riparian wetlands, dewatering upstream reaches, and reducing aesthetic and recreational value. Reduced overbank flooding can adversely affect reproduction of riparian vegetation and wetland and riparian functions.[19] Channelization can inhibit the movement of fish, other aquatic biota, and wildlife, and thus isolate and reduce the viability of populations up and downstream.[20] Construction of channels can introduce sediment, nutrients, and toxics into the water column.[21]	1) Identify direct and indirect effects of proposed channelization projects on beneficial uses. 2) Characterize and display at project-area and regional scales existing wildlands, along with riparian corridors and other water features supporting habitat connectivity. 3) Identify effects of channelization on terrestrial and aquatic habitat connectivity. 4) Identify mitigation.
4. DECREASED FLOOD STORAGE	**A. Increased Runoff.** Reduced flood storage on the floodplain and in channels, swales, wetlands, backwaters, and other natural depressions increases and accelerates runoff.[22]	1) Quantify total and peak volumes of increase runoff for each affected drainage. 2) Identify mitigation.
5. INCREASED GROUNDWATER PUMPING	**A. Change in Groundwater Storage.** Increased groundwater pumping can lower watertables locally or in distant donor basins.[23]	1) Quantify and map locations of project-induced changes in groundwater levels. 2) Identify mitigation.
6. DRY WEATHER DISCHARGE	**A. Change in Baseflow.** Dry weather runoff from urban activities can increase dry-period streamflows.[24]	1) Quantify hydrologic effects of dry weather flows on the baseflow of each affected drainage.
	B. Increased Pollutant Delivery. Dry weather runoff can carry the pollutants generated by the activity causing the flow, e.g., pesticides, nutrients, and petrochemicals from landscape maintenance and cleaning sidewalks and vehicles. Collection of polluted dry weather flows in catch basins may result in shock loadings when it is displaced by subsequent storm flows.[25]	1) Quantify and characterize pollutant loadings from activities generating dry weather runoff to each affected drainage. 2) Identify mitigation.
7. PRODUCTION OF URBAN POLLUTANTS	**A. Increased Pollutant Delivery.** Increased production of urban pollutants can cause increased delivery of pollutants to surface and groundwater.[26]	1) Quantify and characterize pollutant loadings from to each affected drainage. 2) Identify mitigation.

CAUSE	EFFECT	NEEDED ANALYSES
8. CHANGE IN SOIL EROSION	**A. Channel Destabilization.** Changes in upland soil erosion can destabilize stream channels by changing the amount of sediment carried into the stream. The stream may then erode or aggrade its channel to balance its available energy with the changes in its sediment load. 1. Increased sediment from construction causes channel aggradation, changing stream cross sections and redirecting flows.[27] 2. Decreased sediment from a paved watershed can cause channel incision and/or side-cutting. The effect may be compounded by increased runoff from the paved watershed. Aggradation may occur downstream where the flow slows and deposits the eroded sediment, which may deflect flows against the channel banks and cause further bank erosion.[28]	1) Conduct geomorphologic analysis of channel response to increases in construction-related sediment. 2) Conduct geomorphologic analysis of channel response to long-term reductions in sediment delivery to each affected drainage. 3) Identify mitigation. Note: Sediment as a pollutant is considered in No. 7, "Production of Urban Pollutants".
9. INCREASED RUNOFF	**A. Change in Soil Erosion.** Increased runoff can dramatically increase soil erosion by causing greater runoff velocities which more effectively displace and carry soil particles. Construction-related soil destabilization can compound the effect.[29]	1) Quantify increases in sheet and gully erosion resulting from increased runoff. 2) Identify mitigation.
	B. Change in Groundwater Storage. Increased runoff can reduce groundwater recharge and lower water tables, since water draining from impervious surface is unable to percolate to groundwater at that location.[30]	1) Map locations of and quantify losses of recharge and water table response. 2) Identify mitigation.
	C. Channel Destabilization. Increased peak runoff can destabilize channels by increasing the flow velocity and erosive power of the stream. Head cutting, incision and/or widening of the channel, and associated sideslope failures can result. Reduced sediment input as a result of change in soil erosion rates can compound the effect.[31] In small streams, increased runoff may also dislodge logs and other channel features that help to define the channel.[32]	1) Quantify channel geomorphic response to increased runoff for each affected drainage. 2) Identify mitigation.
	D. Increased Pollutant Delivery. Increased runoff increases pollutant delivery because it can more effectively carry particulate and soluble pollutants to receiving waters. Increased flow velocity reduces contact time with soil and vegetation that might otherwise remove pollutants.[33]	1) Quantify types and quantities of increased pollutant loadings to each affected drainage. 2) Identify mitigation.
	E. Increased Flooding Frequency Increased runoff and greater transport efficiency result in higher peak flows from storms of a given return period.[34]	1) Quantify basin level hydrologic effect of increased runoff on each affected basin, including changes in flood return frequencies. 2) Identify mitigation.

CAUSE	EFFECT	NEEDED ANALYSES
	F. Change in Water Temperature. Increased runoff from urban areas can raise the temperature of receiving waters because runoff from impervious surfaces is often warmer than runoff from pervious surfaces or subsurface flow.[35]	1) Model increase in water temperature along stream profile of each affected drainage. 2) Identify mitigation.
	G. Impaired Beneficial Uses. Increased runoff can impair habitat values by flushing fish and invertebrates out of streams;[36] increasing water level fluctuations and the velocity of flows entering wetlands;[37] and causing salinity changes in estuaries and other nearshore marine waters.[38]	1) Identify direct effects of increased flow on aquatic biota, hydrologic regimes of adjacent wetlands, and salinity of marine receiving waters for each affected drainage. 2) Identify mitigation.
10. CHANGE IN GROUNDWATER STORAGE	**A. Change in Baseflow.** Changes in watertable level can cause changes in the dry weather baseflow of streams fed by groundwater.[39]	1) Quantify for each affected drainage the changes in baseflow associated with lowered water tables and map locations. 2) Identify mitigation.
	B. Change in Wetland and Riparian Vegetation. A lowered watertable can dry up wetlands, stress or kill mature riparian vegetation, and reduce or eliminate seedling survival.[40]	1) Identify types and areas of wetlands and riparian areas that would be affected by expected lowering of shallow water tables and map locations. 2) Identify mitigation.
	C. Impaired Beneficial Uses. A lowered watertable can impair water supply and other beneficial uses which use groundwater. Seawater intrusion is possible in coastal areas.[41] Aquifer compaction and subsidence can also occur.[42] Wetland and riparian areas can be dewatered, harming associated vegetation and habitats.[43]	1) Identify affects of expected water table lowering on water supply and other beneficial uses and map locations. 2) Identify mitigation.
11. CHANNEL DESTABILIZATION	**A. Channelization.** Channel erosion can threaten property and structures, leading to placement of riprap or other engineered stabilization of critical sections.[45]	1) Identify stream reaches in which project-induced channel destabilization may require channelization. 2) Identify mitigation.
	B. Change in Groundwater Storage. Channel incision can dewater shallow aquifers adjacent to the channel.[46]	1) Identify and map stream reaches in which project-induced stream incision may dewater shallow aquifers. 2) Identify mitigation.
	C. Increased Pollutant Delivery. Channel erosion can result in increased suspended solids and turbidity in the water column.[47]	1) Identify and map stream reaches subject to project-induced destabilization, quantify changes in channel dimension, and volume of eroded material for each affected basin. 2) Identify mitigation.
	D. Increased Flooding Frequency. Channel aggradation can cause local flooding by diverting flows and decreasing a stream's flow capacity.[48]	1) Identify and map stream reaches in which project-induced channel destabilization may cause aggradation and associated flooding. 2) Identify mitigation.
	E. Change in Water Temperature. Bank erosion and aggradation can increase water temperature by creating a broader channel with shallow flows, increased water surface relative to flow volume, and a smaller proportion of shaded water surface. As a result, summer water temperatures and daily and seasonal temperature fluctuations tend to be greater.[49]	1) Identify and map stream reaches in which project-induced destabilization can increase water temperature. 2) Identify mitigation.

CAUSE	EFFECT	NEEDED ANALYSES
	F. Change in Wetland and Riparian Vegetation. Channel destabilization can encroach on riparian wetlands and undermine streamside vegetation.[50]	1) Identify, characterize, and map wetland and riparian areas subject to encroachment by channel destabilization; . 2) Identify mitigation.
	G. Impaired Beneficial Uses. Channel destabilization can reduce or eliminate habitat, recreation, esthetic values, and other uses by affecting deep pools, pool-riffle ratios, undercut banks, substrate suitability, and other structural features.[51]	1) Identify, characterize, and map stream reaches in which channel destabilization can directly impair beneficial uses. 2) Identify mitigation.
	H. Increased Maintenance and Property Damage. Channel erosion can undermine streamside buildings, bridges, utility crossings, and other property. Aggradation can bury diversion structures and other infrastructure and may require removal to maintain flow capacity.	1) Identify and map stream reaches in which destabilization may cause increased maintenance and property damage. 2) Identify mitigation.
12. CHANGE IN BASEFLOW	**A. Change in Groundwater Storage.** Reduced stream baseflow can decrease groundwater recharge by reducing wetted area and the amount of water available for recharge in stream channels.[52]	1) Identify and map affected stream reaches. 2) Quantify losses of recharge and water table response. 3) Identify mitigation.
	B. Change in Water Temperature. Decreased baseflow, typically resulting from change in groundwater storage, can cause elevated and fluctuating stream temperature because groundwater usually enters the stream at cool, stable temperatures.[53]	1) Identify and map affected stream reaches; 2) Quantify temperature effects along stream profile. 3) Identify mitigation.
	C. Change in Wetland and Riparian Vegetation Decreased stream baseflow can cause riparian vegetation to shift to upland species.[54]	1) Characterize and map affected riparian areas. 2) Identify mitigation.
	D. Impaired Beneficial Uses. 1. Decreases in the amount or duration of baseflow can impair habitat quality by eliminating aquatic and riparian habitat area, reducing flow velocities, and otherwise disrupting the life cycles of plants and animals which are dependent on water.[55] 2. Increases in baseflow resulting from dry weather discharge can impair waterbodies such as seasonal wetlands, vernal pools, and intermittent streams which are naturally defined by seasonal water availability.	1) Identify and map affected waterbody segments. 2) Characterize and quantify changes in baseflow. 3) Identify direct effects on beneficial uses 4) Identify mitigation.
13. INCREASED POLLUTANT DELIVERY	**A. Impaired Beneficial Uses.** Urban pollutants can impair many beneficial uses, e.g., water supply, recreation, fish and wildlife habitat, and shellfish production.[56]	1) Identify direct effects of increased pollutant loadings on beneficial uses in each affected waterbody segment. 2) Identify mitigation.
14. INCREASED FLOODING FREQUENCY	**A. Channelization.** Increased flooding can lead to channelization of the critical section to more efficiently pass flood flows.[57]	1) Identify stream reaches in which project-induced flooding may require channelization. 2) Identify mitigation.

CAUSE	EFFECT	NEEDED ANALYSES
	B. Impaired Beneficial Uses. Increased flooding can impair habitat;[58] water supplies, navigation, and other beneficial uses.	1) Identify stream reaches in which project-induced flooding may impair beneficial uses. 2) Identify mitigation.
	C. Increased Maintenance and Property Damage. Increased flood frequency can result in more maintenance and flood damage.	1) Identify stream reaches in which project-induced flooding may increase maintenance and property damage. 2) Identify mitigation.
15. INCREASED WATER TEMPERATURE	**A. Impaired Beneficial Uses.** Increased water temperature can directly stress aquatic biota and can also affect other parameters associated with habitat quality, such as dissolved oxygen concentration and rate of chemical reactions.[59]	1) Identify and map affected waterbody segments. 2) Quantify temperature changes. 3) Characterize effects on beneficial uses. 4) Identify mitigation.
16. DECREASED POLLUTANT REMOVAL	**A. Increased Pollutant Delivery.** Less removal of pollutants by natural processes can result in greater concentrations of pollutants in receiving waters.[60]	1) Quantify effects to pollutant loadings for each affected waterbody. 2) Identify mitigation.
17. CHANGE IN WETLAND AND RIPARIAN VEGETATION	**A. Channel Destabilization.** Loss of vegetation and its associated anchoring root masses can destabilize channel banks and other geomorphic features.[61]	1) Characterize and map affected geomorphic features. 2) Identify mitigation.
	B. Change in Water Temperature. Loss of riparian vegetation can increase maximum water temperature by exposing more water surface to the sun. Daily and seasonal temperature fluctuations also tend to be greater.[62]	1) Identify and map stream reaches in which loss of riparian vegetation can increase water temperature. 2) Identify mitigation.
	C. Decreased Pollutant Removal. Removal of vegetation adjacent to a waterbody can reduce removal of pollutants from the waterbody and from the overland flow draining to the waterbody.[63]	1) Describe type, areal extent, and pollutant removal value of affected vegetation and map location. 2) Identify mitigation.
	D. Impaired Beneficial Uses. Loss of vegetation directly impairs the quality of aquatic and riparian habitat by reducing cover, structural diversity, and nutrient sources.[64] Removal of vegetation can also fragment and isolate remaining patches of habitat, resulting in decreased habitat value over large areas.[65]	1) Identify affected waterbody segments. 2) Characterize direct effects of vegetation loss on beneficial uses. 3) Characterize and display at project-area and regional scales existing wildlands, along with riparian corridors and other water features supporting habitat connectivity. 4) Identify effects of vegetation change on terrestrial and aquatic habitat connectivity. 5) Identify mitigation.

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[29] Dunne and Leopold 1978, pp. 511-513.

[30] Ca SWRCB 1994b, p. 2.
US Fed Interag Str Rest Wk Gp 1998, pp. 1-15, 3-24.
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Terrene Institute 1994, p.1.
Dunne and Leopold 1978, p. 275, 277
Klein 1979.
USEPA 1993a pp. 4-5 – 4-10.

[31] USEPA 1993b, pp. 3, 30.
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Ca SWRCB 1994b, p. 4.
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US Fed Interag Str Rest Wk Gp 1998, pp. 3-24, 3-25.
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USEPA 1993a pp. 4-5 – 4-10.

[32] Booth 1990.
Patton 1981, cited in Arnold et al 1982.

[33] Knutson 1997, p.70.
Terrene Institute, 1994, p.1.
USEPA 1993b, p. 15, 32.

[34] Ca SWRCB 1994a, p.31.
Ca SWRCB 1994b, p. 3.
Dunne and Leopold 1978, pp. 276-77, 695.
USEPA 1993b, p.17.
Mount 1995, p. 290-291.
Booth 1990.
Kondolf and Keller 1991.
Arnold et al 1982.
Klein 1979.
Schueller 1994. USEPA 1993a pp. 4-5 – 4-10.

[35] Ca SWRCB 1994b, p. 4.
Terrene Institute 1994, p.4.
US Fed Interag Str Rest Wk Gp 1998, p.3-27.
Knutson 1997, pp.70, 70-71.
Schueller 1994.
USEPA 1993a pp. 4-5 – 4-10.

[36] Klein 1979,
Borchardt and Statzner 1990.

[37] USEPA 1993b, pp.30, 35-38.

[38] USEPA 1993a pp. 4-5 – 4-10

[39] Ca SWRCB 1994b, p. 3.
USEPA 1993b, pp. 3, 29, 30.
US Fed Interag Str Rest Wk Gp 1998, pp. 1-15, 3-24.
Dunne and Leopold 1978, pp. 225, 277.
USFWS 1982, p.34.
USEPA 1993b, p. 17, 30.
Klein 1979.
USEPA 1993a pp. 4-5 – 4-10.

[40] USFWS 1982, p. 73.
Kondolf and Curry 1986.

[41] Dunne and Leopold 1978, p. 225

[42] Dunne and Leopold 1978, p. 227-229.

[43] USEPA 1993b, p. 30.
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[44] Ca SWRCB 1994a, p. 31.
Dunne and Leopold 1978, p. 404.
Mount 1995, p. 305.
USEPA 1993b, p.30.
USFWS 1982, pp.39, 100.
Arnold et al 1982.

[45] Dunne and Leopold 1978, p.703.
Mount 1995, p. 287.
USEPA 1993a pp. 4-5 – 4-10.

[46] Ca SWRCB 1994a, p. 31

[47] US Fed Interag Str Rest Wk Gp 1998, pp. 3-24, 3-25.
Dunne and Leopold 1978, pp. 694-695, 697.

[48] Mount 1995, p. 305.

[49] Knutson 1997, p.71.
Klein 1979.

[50] Ca SWRCB 1994b, p. 3.
US Fed Interag Str Rest Wk Gp 1998, p.3-24 – 3-25.
USFWS 1982, p.100.
Knutson 1997, p.70.

[51] Ca SWRCB 1994a, p. 31.
Knutson 1997, p.70.
US Fed Interag Str Rest Wk Gp 1998, p. 3-26.
USEPA 1993b, p.3.
USFWS 1982, p.56-57
Klein 1979.
Borchardt and Statzner 1990.
Schueller 1994.

[52] USFWS 1982, p.69.

[53] Klein 1979.

[54] USEPA 1993b, p.37.

[55] USEPA 1993b, p.30, 37.
Klein 1979.

[56] Ca SWRCB 1994b, p. 4.
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Borchardt and Statzner 1990.
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[57] Mount 1995, pp.287, 305.

[58] USEPA 1993b, pp.36-38.
Schueller 1994.

[59] Terrene Institute 1994, p.4.
USFWS 1982, pp.39, 56.

[60] Ca SWRCB 1994a, p.22.

[61] Terrene Institute 1994, p.26.
US Fed Interag Str Rest Wk Gp 1998, pp.3-14, 3-16.
USFWS 1982, pp.54, 73.
Knutson 1997, p.69.
Kondolf and Curry 1986.

[62] Terrene Institute 1994, p.26.
USFWS 1982, pp. 39, 54.
Knutson 1997, pp. 69, 71.
US Fed Interag Str Rest Wk Gp 1998, pp. 3-16, 3-25.
Mount 1995, p.308.
Klein 1979.
USEPA 1993A pp. 4-5 – 4-10.

[63] Ca SWRCB 1994a, p. 22.
Knutson 1997, p.69.
Terrene Institute 1994, p. 26.
US Fed Interag Str Rest Wk Gp 1998, pp. 2-9, 3-27.
USFWS 1982, pp. 54, 62.

[64] Ca SWRCB 1994a, p.22.
Knutson 1997, pp.19-38, 69.
USFWS 1982, p.54.

[65] Burke 1995, pp. 1365-1369
Dodd 1998, pp. 331-339
Findley 1997, pp. 1000-1009
Hilty 2004, pp. 126-135
Joyal 2001, pp. 1755-1762
Knutson 1997, p. 32, 71.
National Research Council 2001, p. 42
Nature Conservancy 2000, p. 10
Noss 1994, pp. 33-34, 50-54, 59-62
Parmesan 2003, pp. 37-42
Pounds 2004, pp. 107-109
Root 2003, pp. 57-60
Saunders 1991, pp. 18-32
Semlitsch 1997, pp. 1113-1119
Semlitsch 1998, pp. 1129-1133
Soulé 1991, pp. 313-323
Soulé 1992, pp. 39-47
US Fed Interag Str Rest Wk Gp 1998, pp. 2-80 - 2-82.

Enclosure 2

State Water Resources Control Board

Terrestrial Habitat Connectivity Related To Wetland, Riparian, and Other Aquatic Resources

Comments on Draft EIS/EIR for High-Speed Rail

December 2005

Terrestrial Habitat Connectivity Related To Wetland, Riparian and Other Aquatic Resources,

"Habitat connectivity" refers to the need for plant and animal populations to have some mobility over the landscape, i.e., to avoid becoming "isolated" or "disjunct." [1] In recent decades a large body of research has demonstrated that such "isolated" populations face a high probability of eventual extinction, even if their immediate habitats are spared.[2] In general, the smaller such an isolated population, the more quickly it will die out. Urban development typically fragments habitat by creating artificial landscapes which are movement barriers for most species. Unless mitigation measures are taken, isolated, non-viable populations are created as buildings, roads, and landscaping cut off lines of movement.

In the context of wetlands, "habitat connectivity" refers to three related phenomena:

1. The need of some animals to have access to both wetland and upland habitats at different parts of their life cycle. Some wetland animals, e.g., some amphibians and turtles, require access at different seasons and/or at different life stages to both wetland and to nearby upland. Preserving the wetland but not access to upland habitat will locally exterminate such species.[3]
2. The ecological relationship between separate wetlands. Some wetland communities and their associated species comprise networks of "patches" throughout a landscape. Wetland plants and animals are adapted to the presence of wetland complexes within a watershed and are dependent on moving among the wetlands within the complex, either regularly or in response to environmental stressors such as flood or drought, local food shortage, predator pressure, or influx of pollution. Removing one such water from the complex will reduce the biological quality of the rest, and at some point the simplified wetland complex will be incapable of supporting at least some of the species, even though some wetlands remain.[4]
3. The role wetlands and riparian corridors play in allowing larger-scale movements. Some strategically located wetlands and especially continuous strips of riparian habitat along streams facilitate connectivity at watershed and regional scales for terrestrial as well as aquatic and amphibious species.

As noted above, habitat connectivity is critical to biodiversity maintenance, and will become more so because of global warming. Significant range shifts and other responses to global warming have already occurred. The ability of biotic populations to move across the landscape may be critical to their survival in coming decades.[5]

[1] Such mobility may occur at the level of the individual organism (e.g., a bird or turtle travelling between separated wetlands) and/or of the population (e.g., a plant species colonizing a new wetland through seed dispersal); and over different time scales.

[2] For the effects of habitat fragmentation and population isolation on the survival of plants and animals, see for example:

K. L. Knutson and V.L. Naef, *Management Recommendations for Washington's Priority Habitats: Riparian*, Washington Dept. of Fish and Wildlife, Olympia, WA, December 1997, p. 71.

R.F Noss and A.Y Cooperrider, *Saving Nature's Legacy; Protecting and Restoring Biodiversity,* Washington, D.C., Island Press, 1994, pp. 33-34, 50-54, 59-62, 61-62.

D.E. Saunders, R.J. Hobbs, and C.R. Margules, "Biological Consequences of Ecosystem Fragmentation: A Review," *Conservation Biology* 5(1), March 1991, pp. 18-32.

Michael E.Soulé, "Land Use Planning and Wildlife Maintenance, Guidelines for Conserving Wildlife in an Urban Landscape," *Journal of the American Planning Association* 57(3), 1991, pp. 313-323.

Michael E. Soulé, "The Effects of Habitat Fragmentation on Chaparral Plants and Vertebrates," *Oikos* 63, 1992, pp. 39-47.

United States Federal Interagency Stream Restoration Working Group, *Stream Corridor Restoration: Principles, Practices, and Processes*, October 1998, [Online]. Available from: http://www.usda.gov/stream_restoration. Printed copy available from: National Technical Information Service (NTIS), Springfield, VA, pp. 2-80, 2-82.

[3] Regarding the relationship between wetland and upland habitats, see for example:

Vincent J. Burke and J. Whitfield Gibbons, "Terrestrial Buffer Zones and Wetland Conservation: A Case Study of Freshwater Turtles in a Carolina Bay," *Conservation Biology* 9(6), 1995, pp. 1365-1369;

C. Kenneth Dodd , Jr. and Brian S. Cade, "Movement Patterns and the Conservation of Amphibians Breeding in Small Temporary Wetlands," *Conservation Biology* 12(2), 1998, pp. 331-339;

Raymond D. Semlitsch, "Biological Delineation of Terrestrial Buffer Zones for Pond Breeding Salamanders," *Conservation Biology* 12(4), 1997, pp. 1113-1119.

Hilty, J. A. and Merenlender, A. M. Use of Riparian Corridors and Vineyards by Mammalian Predators in Northern California. Conservation Biology 18(1) 126-135; 2004 February.

[4] Regarding the ecological relationship between separated wetlands, see for example:

C. Scott Findley and Jeff Houlahan, "Anthropogenic Correlates of Species Richness in Southeastern Ontario Wetlands, *Conservation Biology* 11(4), 1997, pp. 1000-1009;

Lisa A. Joyal, Mark McCollough, and Malcom L. Hunter, Jr., "Landscape Ecology Approaches to Wetland Species Conservation: A Case Study of Two Turtle Species in Southern Maine," *Conservation Biology* 15(6), 2001, pp. 1755-1762;

Raymond D. Semlitsch and J. Russell Bodie, "Are Small, Isolated Wetlands Expendable?" *Conservation Biology 12(5),* 1998, pp.1129-1133;

National Research Council, *op. cit.,* 2001, p. 42;

Nature Conservancy, *op. cit.*, July 2000, p. 10.

[5] Recent reports comprehensively review observed effects of global change on plant and animal range shifts, advancement of spring events, and other responses. See:

Terry L. Root, Jeff T. Price, Kimberly R. Hall, Stephen H. Schnieder, Cynthia Rosenzweig, and Alan Pounds, "Fingerprints of Global warming on Wild Animals and Plants," *Science* 421:2, January 2003, pp. 57-60.

Camille Parmesan and Gary Yohe, "A Globally Coherent Fingerprint of Climate Change Impacts cross Natural Systems," *Science* 421:2, January 2003, pp. 37-42.

Thomas, et al. "Extinction risk from climate change", *Nature* 427, January 2004, pp. 145-148

California Regional Water Quality Control Board
San Francisco Bay Region

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Arnold Schwarzenegger
Governor

December 12, 2005
File No. 2198.09 (BKW)

Dan Leavitt
California High Speed Rail
925 L Street, Suite 1425
Sacramento, CA 95814

Re: Comments on the Notice of Preparation for the Bay Area to Central Valley High-Speed Train draft Environmental Impact Report
SCH Number: 2005112051

Dear Mr. Leavitt:

San Francisco Bay Regional Water Quality Control Board (Water Board) staff have reviewed the *Notice of Preparation for the Bay Area to Central Valley High-Speed Train Draft Environmental Impact Report* (DEIR). The DEIR will define several alternate rail corridors between the Bay Area and the Central Valley, and evaluate anticipated environmental impacts resulting from each of the proposed rail corridors. Water Board staff have the following comments concerning topics that should be addressed in the DEIR.

Comment 1
The DEIR should address potential impacts on water quality associated with stormwater runoff from High-Speed Train (HST) system facilities. Both Alameda County and Santa Clara County have countywide clean water programs (the Alameda Countywide Clean Water Program and the Santa Clara Valley Urban Runoff Pollution Prevention Program) that oversee the implementation of National Pollutant Discharge Elimination System (NPDES) permits for stormwater discharges from new development and significant redevelopment. Under the terms of the NPDES permits, post-construction best management practices (BMPs) are required to meet the maximum extant practicable (MEP) definition of treatment specified in the Clean Water Act (CWA). New development and significant redevelopment Projects are required to comply with the numeric standards for post-construction stormwater BMPs in the NPDES permits. Treatment BMPs are to be constructed that incorporate, at a minimum, the following hydraulic sizing design criteria to treat stormwater runoff. As appropriate for each criterion, local rainfall data are to be used or appropriately analyzed for the design of the BMPs.

Volume Hydraulic Design Basis: Treatment BMPs whose primary mode of action depends on volume capacity, such as detention/retention units or infiltration structures, shall be designed to treat stormwater runoff equal to:

1. the maximized stormwater quality capture volume for the area, based on historical rainfall records, determined using the formula and volume capture coefficients set forth in *Urban Runoff Quality*

Management, WEF Manual of Practice No. 23/ ASCE Manual of Practice No. 87, (1998), pages 175-178 (e.g., approximately the 85th percentile 24-hour storm runoff event); or

2. the volume of annual runoff required to achieve 80 percent or more capture, determined in accordance with the methodology set forth in Appendix D of the *California Stormwater Best Management Practices Handbook,* (1993), using local rainfall data.

Flow Hydraulic Design Basis: Treatment BMPs whose primary mode of action depends on flow capacity, such as swales, sand filters, or wetlands, shall be sized to treat:

1. 10% of the 50-year peak flow rate; or
2. the flow of runoff produced by a rain event equal to at least two times the 85th percentile hourly rainfall intensity for the applicable area, based on historical records of hourly rainfall depths; or
3. the flow of runoff resulting from a rain event equal to at least 0.2 inches per hour intensity.

HST parking lots, stations, and other facilities with more than an acre of impervious surfaces will be required to meet these treatment standards. Water Board staff strongly encourage the use of landscape-based stormwater treatment measures, such as biofilters and vegetated swales, to manage runoff from the project sites. Since landscape-based stormwater treatment measures require that some of the site surface area be set aside for their construction, the proper sizing and placement of these features should be evaluated early in the design process to facilitate incorporation of the features into the site landscaping. Water Board staff discourage the use of inlet filter devices for stormwater management. Filtration systems require a maintenance program that is adequate to maintain the functional integrity of the systems and to ensure that improperly maintained filtration devices do not themselves become sources of stormwater contaminants or fail to function. Water Board staff have observed problems with the use of inlet filter inserts, since these devices require high levels of maintenance and are easily clogged by leaves or other commonly occurring debris, rendering them ineffective. Research conducted by the California Department of Transportation has demonstrated that inlet filters can be clogged by a single storm event. The study found that these devices required maintenance before and after storm events as small as 0.1 inch of rain. In addition, trash, debris, and sediment in the catchment had a significant impact on the frequency of maintenance[1]. Therefore,

[1] Othmer, Friedman, Borroum and Currier, November 2001, *Performance Evaluation of Structural BMPs: Drain Inlet Inserts (Fossil Filter™ and StreamGuard™) and Oil/Water Separator*, Sacramento, Caltrans.

adequate maintenance of inlet filters to provide MEP water quality treatment would be prohibitively expensive and impractically time consuming.

Water Board staff recommend that the project proponents refer to *Start at the Source*, a design guidance manual for storm water quality protection, for a fuller discussion of the selection of stormwater management practices. This manual provides innovative procedures for designing structures, parking lots, drainage systems, and landscaping to mitigate the impacts of stormwater runoff on receiving waters. This manual may be obtained from the Santa Clara Valley Urban Runoff Pollution Prevention Program's website (www.scvurppp.org) or by e-mailing a request to the e-mail address in the last paragraph of this letter. Useful information is also available in the *Contra Costa Clean Water Program Stormwater Quality Requirements for Development Applications* (available at http://www.cccleanwater.org) and in the *California Stormwater Quality Association (CASQA), Stormwater Best Management Practice Handbook, New Development and Redevelopment* (available at www.cabmphandbooks.com).

Additional innovative techniques for incorporating structural stormwater BMPs into urban design, such as infiltration planter boxes, can be found in Portland, Oregon's *2002 Stormwater Management Manual*, which can be obtained at www.cleanrivers-pdx.org/tech_resources/2002_swmm.htm.

Comment 2

The HST line is likely to cross the channels of several perennial and seasonal creeks. Any new crossings of such channels will require Clean Water Act (CWA) Section 404 Permits from the Army Corps of Engineers (ACOE), CWA Section 401 Certification from the Water Board, and/or the issuance of Waste Discharge Requirements (WDRs) from the Water Board. Please note that Water Board staff discourage the use of culverts for channel crossings. If a free span crossing is not feasible, new culverts should be designed to have an open bottom (e.g., a three-sided culvert, or a culvert with the bottom side buried beneath the cannel floor). An open bottom culvert design is less disruptive of any habitat values present in the channel and has fewer impacts on channel stability. Closed bottom culverts are likely to cause either excessive erosion of the creek bed or excessive deposition on the creek bed both upstream and downstream of the culvert.

The discussion of creek crossings in the DEIR should also note that the Porter-Cologne Water Quality Act gives the Water Board jurisdiction beyond areas under the jurisdiction of the ACOE, including areas on creek banks that are above the ordinary high water mark (OHW). For example, clear span bridges with abutments above OHW would not need a Clean Water Act Section 401 permit from the ACOE, but may require WDRs from the Water Board.